EQAO

Education
Quality and
Accountability
Office

# *Ontario Provincial Report on Achievement 2001–2002*

## English-Language Schools

January 2003

## *The Board of Directors*

The Board of Directors, from left to right: Bette Stephenson, Beverley J. Oda, Martin Cugelman, Dominic Giroux, Jerry Ponikvar (chair), John Martel, Doretta Wilson, Nancy A. Elgie, Krystyna Rudko (no photo).

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# *Chair's Message*

EQAO is pleased to present its sixth annual *Ontario Provincial Report on Achievement*, which brings together results and recommendations from the provincial, national and international assessments that took place during 2001–2002. As EQAO enters its seventh year, we remain committed to gathering and reporting accurate and reliable information about student achievement. The report highlights provincial trends and identifies areas that require action on the part of every community across Ontario.

The trend toward improvement is encouraging. We are seeing greater numbers of students meeting the provincial standards, and there is evidence of improvement at both the national and international levels, where Ontario students are achieving significantly higher levels than in past years.

Ontario's educators play an important role in EQAO's work as they design, develop, validate, field test and mark the assessments. In the classroom, teachers are making reading, writing and mathematics high priorities, and their efforts are showing positive results. Their dedication is further demonstrated by school and board improvement plans that identify areas to strengthen. Each year, school and board improvement plans are submitted to EQAO for review, and feedback is provided by EQAO for each improvement plan. The review of the school board plans submitted in 2002 indicates that the boards are continuing to make good progress in refining them and using them to achieve improved results.

Schools, boards, parents, councils and community members are striving to meet the high expectations Ontarians have for our publicly funded education system. Together, we can ensure that students acquire the skills they need for future educational and career opportunities and for everyday life outside of school.

Jerry G. Ponikvar

# *Education Quality and Accountability Office (EQAO)*

## Responsibilities

- To conduct province-wide tests of elementary and secondary school students
- To coordinate Ontario's participation in national and international assessments
- To administer a provincial Education Quality Indicators Program (EQUIP) to strengthen school board accountability
- To report to parents and the public about student achievement and education quality in Ontario
- To make recommendations for school and system improvement

## Values

- EQAO values the well-being of learners above all other interests.
- EQAO values only that information which has the potential to bring about constructive change and improvement.
- EQAO values the dedication and expertise of Ontario's educators and works to involve them in all of its activities.
- EQAO values the delivery of its programs and services with equivalent quality in both English and French.

## Approach

- Assess students' achievement in different subject areas and at key stages in their schooling
- Assess students' achievement against the expectations in the provincial curriculum
- Analyze data on student achievement and the learning environment inside and outside the school to determine where progress is being made and where gaps need to be closed
- Prepare materials and provide opportunities that teachers can use to enhance their skills and expertise in assessment
- Report to parents, students, educators and the public about student achievement and education quality
- Make recommendations for improvement
- Monitor improvements in student achievement over time to identify areas of strength and areas requiring further attention
- Support a culture of assessment through ongoing testing, research and administration of a quality indicators program

### Role

EQAO promotes greater accountability and better quality in Ontario's publicly funded school system. An arm's-length agency of the provincial government, EQAO provides parents, teachers and the public with accurate and reliable information about student achievement.
EQAO also makes recommendations for improvement that educators, parents, policy-makers and others in the education community can use to improve learning and teaching.

Education
Quality and
Accountability
Office

# *The Grade 3 and Grade 6 Assessments of Reading, Writing and Mathematics, 2001–2002*

## Report of Provincial Results

December 2002

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## Achievement Highlights

### Grade 3

*Overall Achievement at Level 3 and Above (Method 1[1])*

| | 1997–1998 | 1998–1999 | 1999–2000 | 2000–2001 | 2001–2002 |
|---|---|---|---|---|---|
| Reading | 46% | 45% | 49% | 49% | 50% |
| Writing | 49% | 52% | 52% | 52% | 55% |
| Mathematics | 43% | 56% | 57% | 61% | 58% |

**Observations:**

- In Grade 3, half the students achieved the provincial standard in reading (50%) and more than half achieved the provincial standard in writing (55%) and mathematics (58%).

### Grade 6

*Overall Achievement at Level 3 and Above (Method 1[1])*

| | 1998–1999 | 1999–2000 | 2000–2001 | 2001–2002 |
|---|---|---|---|---|
| Reading | 48% | 50% | 55% | 55% |
| Writing | 48% | 48% | 53% | 53% |
| Mathematics | 46% | 51% | 54% | 54% |

**Observations:**

- In Grade 6, more than half the students achieved the provincial standard in reading (55%), writing (53%) and mathematics (54%).

[1] Refer to page 7 for a description of Method 1 and Method 2.

## Key Messages

- Grade 3 students continue to show slow but steady improvement in reading and writing over the past five years of the assessment.
- Following a significant improvement in achievement between the first and second year of the assessment, Grade 3 students' mathematics achievement has remained relatively stable.
- Following slow but steady improvements in achievement over the first three years of the assessment, the achievement of Grade 6 students in reading, writing and mathematics has remained stable.
- In Grade 3 and Grade 6 reading and writing, girls significantly outperformed boys.
- In Grade 3 and Grade 6 mathematics, the achievement of girls was slightly better than that of boys.

## Key Recommendations

EQAO recommends

- that **school boards** carefully review their improvement plans in relation to the board data that they have accumulated over the past five years from the Grade 3 and Grade 6 provincial assessments and revise their improvement plans, using the *EQAO Guide to School and Board Improvement Planning, April 2002.*
- that **school boards** examine the assessment results from all of their schools and identify those that are improving, in order to identify factors that relate to improvement and that they share such information to develop improvement strategies board-wide.
- that **school boards and schools** analyze disaggregated as well as aggregated achievement and contextual data in planning for improvement, and identify strategies that target areas and groups in need of additional support and improvement.
- that **principals,** with support from boards and the Ministry of Education, provide teachers with opportunities for professional development in assessment literacy and, in particular, in using assessment data along with best practices to develop strategies for improvement.

# *The Grade 3 and Grade 6 Assessments of Reading, Writing and Mathematics, 2001–2002*

## Introduction

The Education Quality and Accountability Office (EQAO) conducts several province-wide assessments, among them the Grade 3 and Grade 6 Assessments of Reading, Writing and Mathematics. Both assessments are conducted annually and involve all Grade 3 and Grade 6 students in publicly funded schools in Ontario. The results of these assessments provide individual, school and school board data on student achievement at two key stages in elementary education. Parents receive an Individual Student Report that provides information on their child's achievement on the assessment. Schools and boards create their own reports, based on EQAO data, for distribution to parents and other stakeholders in the community. As well, EQAO publishes an annual *Provincial Report on Achievement* for education stakeholders and the public. Data from the assessments provide valuable information to support improvement planning at the school and board levels.

## Assessment Content

The Grade 3 and Grade 6 assessments measure how well students have met the provincial expectations in *The Ontario Curriculum, Grades 1–8*. Each assessment covers the knowledge and skills in reading, writing and mathematics that students are expected to have acquired by the end of the grade being assessed. These assessments contain performance-based activities, requiring written responses, and multiple-choice questions. This combination of question types allows students to demonstrate both the depth and the scope of their learning and provides a variety of ways for students to demonstrate what they know and what they can do.

### *Reading*

In the reading component of the assessment, students demonstrate their knowledge and skills by reading a variety of materials, including both fiction and non-fiction. This part of the assessment measures how well students use various reading strategies and conventions and how effectively they understand concepts, make inferences and connect ideas. The four reading categories outlined in the Grade 3 and Grade 6 curriculum and evaluated by the assessments are as follows:

- Reasoning: the student selects, describes, interprets and analyzes relevant information and ideas from the text to show understanding
- Communication: the student relates ideas from the text to personal knowledge and experiences and to other readings (Grade 3); the student explains an interpretation of the text, supporting it with evidence from the text and his/her own knowledge and experience (Grade 6)
- Organization of ideas: the student identifies and describes different organizational forms and characteristics of texts and uses this knowledge to aid understanding
- Application of language conventions: the student identifies and explains the use of appropriate language conventions (e.g., phonics, spelling, grammar, punctuation and style)

### *Writing*

In the writing component of the assessment, students demonstrate their knowledge and skills by using various forms of writing and by writing for different purposes. This part of the assessment measures how well students use writing strategies and language conventions and how effectively they understand assigned tasks, organize ideas and communicate with the reader. During the assessment, students produce two pieces of written work. One piece models the writing process, while the other is an on-demand piece. The four writing categories outlined in the Grade 3 and Grade 6 curriculum and evaluated by the assessments are as follows:

- Reasoning: the student understands the purpose of the task, develops ideas and relates them to the purpose of the task and to each other
- Communication: the student uses appropriate writing techniques, (including vocabulary, imagery and sentence variety), uses an appropriate voice and writes for a specific audience
- Organization of ideas: the student shows evidence of a logical plan and/or focus and presents connected ideas (Grade 3); the student uses a logical sequence in sentences, paragraphs and overall organization and structure (Grade 6)
- Application of language conventions: the student applies language conventions correctly (spelling, grammar, punctuation, etc.)

### *Mathematics*

In the mathematics component of the assessment, students demonstrate their knowledge and skills by solving problems, applying procedures and explaining how they have arrived at their answers. This part of the assessment also tests students' knowledge and skills within the five strands of mathematics: number sense and numeration, geometry and spatial sense, measurement, patterning and algebra, and data management and probability. The four mathematics categories outlined in the Grade 3 and Grade 6 curriculum and evaluated by the assessments are as follows:

- Problem solving: the student chooses and carries out appropriate strategies and applies them correctly
- Understanding of concepts: the student uses and explains required concepts, incorporating mathematical ideas and relationships
- Application of mathematical procedures: the student selects and accurately applies procedures (e.g., making a graph) and operations (e.g., adding and multiplying)
- Communication of required knowledge: the student justifies the reasonableness of solutions and provides clear explanations using appropriate mathematical terms and symbols

## Participation

All Ontario Grade 3 and Grade 6 students in publicly funded schools are expected to participate in the assessments. Teachers and principals are expected, therefore, to make every effort to enable all students to participate in all aspects of the assessment in order to demonstrate the full extent of their learning. This may involve providing one or more permitted accommodations during the assessment. Accommodations must follow the policies of the Ministry of Education and EQAO to ensure the integrity of the assessments. The only students eligible for permitted accommodations are students with special needs or ESL students in the early stages of English-language acquisition. It is assumed that these students require accommodations for classroom assessment tasks throughout the school year.

Note: An Individual Education Plan (IEP) must be developed for those students identified as exceptional and/or receiving special education support in order for the students to be eligible for permitted accommodations during the provincial assessments. The accommodations are provided as identified in the students' IEPs in the year(s) in which they will participate in the assessments. As well, the accommodations must meet the criteria of those allowed by EQAO. An ESL student in the early stages of English-language acquisition may not necessarily have an IEP. Accommodations allowed by EQAO are

- additional time (to a maximum of twice the stated time for an independent activity),
- pacing prompts,
- verbatim scribing (only in reading and mathematics),
- a quiet workplace,
- specialized resources, including assistive devices,
- alternative media for hearing-impaired and visually impaired students and
- technology resources as indicated on the student's Individual Education Plan (IEP).

Schools are required to document any accommodations on the Student Information Form at the time of the assessment, and the accommodations are noted on the Individual Student Report when student results are sent to the schools.

In rare instances, a student may need to be exempted from participating in all or part of an assessment if the full range of permitted accommodations has been considered and it is determined that the student would still not be able to provide evidence of learning under these assessment conditions. Before granting an exemption, the principal must consult with the student's parents and teacher and obtain written parental consent.

## Administration and Marking

The Grades 3 and 6 assessments are conducted annually in May. The assessments take place over five days for up to two-and-a-half hours each day. In both grades, students complete introductory activities with their classmates and then work independently to solve problems, write their responses and answer multiple-choice questions.

All teachers responsible for administering the assessments receive detailed guidelines in the Teacher's Daily Plans. In addition, EQAO staff provide training to school board personnel who, in turn, train those responsible for administering the assessments at the school level. This process contributes to skills development and confidence building among those responsible for administering the assessments.

The Grades 3 and 6 Assessments of Reading, Writing and Mathematics, like all of EQAO's provincial initiatives, involve educators at every stage. Teachers and administrators from across the province participate in developing, field-testing and validating the assessment materials. In addition, the assessments are marked by educators representing all elementary grades. Marking provides teachers with valuable professional development in which to hone their skills in assessing student achievement. During the 2001 2002 marking session, about 90% of the nearly 2400 English- and French-language teachers involved reported that the experience would have a positive impact on their classroom practice and was a useful professional development experience. The comment of one marker summarized the opinion of many: Great professional development! A great help and confidence builder in my teaching.

For each assessment, the constructed-response sections comprise approximately 80% of the assessment, while the multiple-choice sections comprise approximately 20% of the assessment. The constructed-response sections in reading and writing are organized and marked according to the four curriculum categories outlined previously. In mathematics, the constructed responses are marked according to the five mathematics strands and the four categories. The multiple-choice components are scored mechanically.

EQAO reports on student achievement in reading, writing and mathematics using a four-level scale. This scale is based on *The Ontario Curriculum, Grades 1–8* and sets Level 3 as the provincial standard. The markers are trained to assess student written work according to these four levels of achievement. Students may also be designated NE1 (the student has provided enough information to score but does not demonstrate enough evidence of knowledge and understanding to be assigned Level 1), IIS (the student's work provides insufficient information to be assigned a level of achievement), exempt (the student was formally exempted from participating in the assessment) and No Data (EQAO received no completed assessment booklets).

In the Achievement Results section of this report, data are provided according to the achievement levels and the various designations described above. Calculations are made in two ways, which EQAO terms Method 1 and Method 2.

### *Method 1*

In Method 1 all data are reported. Method 1 expresses the number of students achieving at each level as a percentage of all of the students in the grade, including students who were exempted and those who took part in the assessment but did not produce enough work to be scored. Method 1 is EQAO's primary method of reporting, because publicly funded schools are accountable for the achievement and progress of all students. Schools and school boards are required to use this method to ensure consistency of reporting across the province.

### *Method 2*

Method 2 is an alternate way of presenting the data. Method 2 expresses the distribution of student results as a percentage of those students who actually took part in the assessment and produced at least some work that could be scored. Students who were exempt or for whom we have no performance data are excluded. Method 2 highlights the results achieved by students who have at least some scorable work.

## Generating Achievement Results

EQAO reports overall levels of achievement for each subject — reading, writing and mathematics — as well as more detailed results, according to the categories and strands described earlier.

The overall results for each subject are derived by combining the results from the constructed-response section with those from the multiple-choice section. For reading and writing, the overall result is generated from five sources of data (the four categories of the written work and one multiple-choice section). For mathematics, it is derived from ten sources (the four categories and five strands of the written work and the one multiple-choice section).

## Quality Assurance

Quality assurance procedures help to ensure that EQAO's assessments produce valid and reliable data. These procedures are embedded in each stage of the assessment cycle, including design and development, field testing, administration, marking and reporting. EQAO uses quality assurance information collected during and at the end of each assessment cycle to review and improve assessment materials, policies and procedures. The following information provides a brief summary of the main quality assurance measures of the Grades 3 and 6 assessments.

### *Design and Development*

In the design and development phase, a technical committee of assessment experts provides advice to ensure the assessments are consistent with EQAO values and conform to sound assessment practices. EQAO personnel train teams of educators from schools and boards across the province and continually monitor and support their work. A validation team, composed of practising teachers and assessment experts, examines test materials for bias and appropriateness. In addition, the English and French development teams work collaboratively to ensure that the assessments are comparable between the two languages.

### *Field Testing*

The Grade 3 and Grade 6 assessment materials are field-tested prior to their administration in May. Each year the Grade 3 materials are field-tested in 30 Grade 4 classrooms across the province; the Grade 6 materials are field-tested in 30 Grade 7 classrooms. Altogether, approximately 600 Grade 4 and 600 Grade 7 students and their teachers are involved. During the field test, teachers are asked to complete a questionnaire regarding the appropriateness of all of the assessment materials, as well as the reaction of the students to them. Following field-test marking, EQAO reviews all the information generated by the field test and compiles the final assessment materials, which are subjected to further scrutiny by a validation committee before being finally reviewed and approved by a technical committee.

### *Administration*

In the administration phase, EQAO staff monitor the training of teachers to administer the assessments. As well, EQAO quality assurance monitors make on-site visits to approximately 10% of the participating classrooms to observe and collect data on how accurately and consistently teachers and principals follow the procedures outlined in the *Administration Guide for Teachers and Principals*. EQAO staff and data analysts are trained to detect irregularities during the administration of the assessments. EQAO staff, together with school board and school officials,

investigate all reported or suspected irregularities. EQAO also makes follow-up visits to schools where irregularities were identified during the administration of the previous year's assessments.

### *Marking*

During marking, various types of reliability checks are conducted. Questionnaires are administered to markers to gather feedback on the training process. Each morning, before marking begins, markers score orientation booklets to ensure marking procedures and standards are applied consistently from day to day. Each afternoon, all markers score a reliability booklet, and the results are analyzed to evaluate the degree of consistency and reliability of the marking. In addition, calibration booklets (random selections of students' booklets) are re-marked each day, and the results of the markings are then compared to generate statistics on marking reliability.

### *Data Management*

EQAO has data management procedures in place to ensure that data are recorded and are correctly attributed to individual students, schools and school boards. EQAO has also developed a formal process for reviewing individual students' results when requests or appeals are received.

## Year-to-Year Comparisons

With the publication of this report, educators, parents, policy-makers and members of the public have five years of Grade 3 achievement data and four years of Grade 6 achievement data based on the current curriculum expectations. They also have five years of contextual data from the questionnaires that students, teachers and principals complete during the assessments.

Through an examination of these data, it is possible to identify some important trends over time. However, it is important to emphasize that some comparisons are valid and meaningful while others should be avoided. For instance, the overall levels of achievement are comparable from year to year. The method EQAO uses to calculate the overall levels of achievement in reading, writing and mathematics allows the calculation of these scores to be reported on the same scale from one year to the next.

On the other hand, modifications and refinements in the design and marking of the performance-based components of the assessments create potential sources of variation in results from year to year for the category and strand scores. This means that the category and strand scores are not directly comparable from year to year. However, parents and teachers are encouraged to examine students' category and strand scores, using test booklets and the samples of student work provided by EQAO. This will help them to determine students' strengths and weaknesses in the categories and strands in comparison to all students who wrote the test. It is useful for school boards to analyze their category and strand results in terms of the provincial results, and schools are encouraged to analyze their results in terms of both the provincial and school board results to gain an understanding of strengths and weaknesses in their students' achievement relative to the larger population.

The multiple-choice component of the assessment includes overlapping questions from year to year. These questions are not subject to change. The analysis of student responses to these questions from the previous year indicates whether there are any changes in student performance. This information, along with the distribution of scores from the previous years, provides a mechanism for measuring year-to-year consistency and a basis for adjusting results where necessary to ensure it.

For further information about the various aspects of the Grades 3 and 6 assessments, please refer to the EQAO Web site (www.eqao.com).

## Participation

This section of the report provides information about the students who participated in the 2001 2002 Grade 3 and Grade 6 Assessments of Reading, Writing and Mathematics.

*Reading*

| | Eligible Population | Percentage No Data | Percentage Exempted | Percentage Fully Participating |
|---|---|---|---|---|
| ***All Students:*** | | | | |
| **Grade 3** | 136 888 | <1% | 6% | 94% |
| **Grade 6** | 145 351 | <1% | 4% | 96% |
| ***Grade 3*** | | | | |
| **Gender** | | | | |
| **Female** | 66 112 | <1% | 4% | 96% |
| **Male** | 70 212 | <1% | 7% | 93% |
| **Student Status** | | | | |
| **ESL** | 7 617 | <1% | 25% | 75% |
| **Special Needs** | 22 999 | <1% | 27% | 73% |
| ***Grade 6*** | | | | |
| **Gender** | | | | |
| **Female** | 70 309 | <1% | 3% | 97% |
| **Male** | 73 975 | <1% | 5% | 95% |
| **Student Status** | | | | |
| **ESL** | 5 208 | 1% | 28% | 71% |
| **Special Needs** | 23 322 | <1% | 20% | 80% |

*Writing*

| | Eligible Population | Percentage No Data | Percentage Exempted | Percentage Fully Participating |
|---|---|---|---|---|
| ***All Students:*** | | | | |
| **Grade 3** | 136 886 | <1% | 5% | 95% |
| **Grade 6** | 145 351 | <1% | 4% | 96% |
| ***Grade 3*** | | | | |
| **Gender** | | | | |
| **Female** | 66 112 | <1% | 4% | 96% |
| **Male** | 70 210 | <1% | 7% | 93% |
| **Student Status** | | | | |
| **ESL** | 7 617 | 1% | 23% | 76% |
| **Special Needs** | 22 997 | <1% | 24% | 76% |
| ***Grade 6*** | | | | |
| **Gender** | | | | |
| **Female** | 70 308 | <1% | 3% | 97% |
| **Male** | 73 975 | <1% | 5% | 95% |
| **Student Status** | | | | |
| **ESL** | 5 208 | 1% | 28% | 71% |
| **Special Needs** | 23 321 | <1% | 19% | 81% |

*Mathematics*

| | Eligible Population | Percentage No Data | Percentage Exempted | Percentage Fully Participating |
|---|---|---|---|---|
| ***All Students:*** | | | | |
| **Grade 3** | 139 725 | <1% | 5% | 95% |
| **Grade 6** | 145 351 | <1% | 4% | 96% |
| ***Grade 3*** | | | | |
| **Gender** | | | | |
| **Female** | 67 705 | <1% | 4% | 96% |
| **Male** | 71 426 | <1% | 6% | 94% |
| **Student Status** | | | | |
| **ESL** | 7 625 | 1% | 20% | 79% |
| **Special Needs** | 23 158 | <1% | 22% | 78% |
| ***Grade 6*** | | | | |
| **Gender** | | | | |
| **Female** | 70 309 | <1% | 3% | 97% |
| **Male** | 73 975 | <1% | 5% | 95% |
| **Student Status** | | | | |
| **ESL** | 5 208 | 1% | 23% | 76% |
| **Special Needs** | 23 322 | <1% | 20% | 80% |

**Observations: Reading, Writing and Mathematics**

Grade 3:

- 48% of the Grade 3 students were female; 51% were male (1% were not specified).
- 5% of Grade 3 were ESL.
- 17% of Grade 3 students were identified as having special needs.
- 20% or more ESL students and students with special needs were exempted from reading, writing or mathematics.

Grade 6:

- 48% of the Grade 6 students were female; 51% were male (1% were not specified).
- 4% of Grade 6 were ESL.
- 16% of Grade 6 students were identified as having special needs.
- 19% or more ESL students and students with special needs were exempted from reading, writing or mathematics.

*Students Who Received One or More Accommodation in Reading*

| | 1997–1998 | 1998–1999 | 1999–2000 | 2000–2001 | 2001–2002 |
|---|---|---|---|---|---|
| Grade 3 | 22% | 25% | 25% | 18% | 11% |
| Grade 6 | n/a | 24% | 17% | 12% | 10% |

*Students Who Received One or More Accommodation in Writing*

| | 1997–1998 | 1998–1999 | 1999–2000 | 2000–2001 | 2001–2002 |
|---|---|---|---|---|---|
| Grade 3 | 22% | 29% | 29% | 19% | 10% |
| Grade 6 | n/a | 34% | 17% | 15% | 10% |

*Students Who Received One or More Accommodation in Mathematics*

| | 1997–1998 | 1998–1999 | 1999–2000 | 2000–2001 | 2001–2002 |
|---|---|---|---|---|---|
| Grade 3 | 22% | 38% | 31% | 22% | 12% |
| Grade 6 | n/a | 28% | 21% | 17% | 10% |

**Observations:**

- The percentage of students who received accommodations this year has decreased significantly.

## Achievement Results

This section of the report provides a summary of the provincial results from the 2001 2002 Grades 3 and 6 assessments. The reading, writing and mathematics results for both grades are presented together to provide a sense of the patterns in each subject that extend across the two grades. The results from these two assessments, including both the achievement and questionnaire data, provide a comprehensive view of student achievement in Ontario.

### Overall Level of Achievement in Reading — Grade 3

| | # = | Exempt | No Data | NEIS | NE1 | Level 1 | Level 2 | Level 3 | Level 4 |
|---|---|---|---|---|---|---|---|---|---|
| **Method 1** | 136 888 | 6% | <1% | 7% | <1% | 9% | 27% | 45% | 5% |
| **Method 2** | 128 407 | N/A | N/A | 8% | <1% | 9% | 29% | 48% | 5% |

### Overall Level of Achievement in Reading — Grade 6

| | # = | Exempt | No Data | NEIS | NE1 | Level 1 | Level 2 | Level 3 | Level 4 |
|---|---|---|---|---|---|---|---|---|---|
| **Method 1** | 145 351 | 4% | <1% | 6% | <1% | 6% | 28% | 47% | 9% |
| **Method 2** | 138 841 | N/A | N/A | 6% | <1% | 7% | 29% | 49% | 9% |

### Overall Level of Achievement in Writing — Grade 3

| | # = | Exempt | No Data | NEIS | NE1 | Level 1 | Level 2 | Level 3 | Level 4 |
|---|---|---|---|---|---|---|---|---|---|
| **Method 1** | 136 886 | 5% | <1% | 3% | <1% | 2% | 33% | 48% | 8% |
| **Method 2** | 129 204 | N/A | N/A | 4% | <1% | 2% | 35% | 50% | 8% |

### Overall Level of Achievement in Writing — Grade 6

| | # = | Exempt | No Data | NEIS | NE1 | Level 1 | Level 2 | Level 3 | Level 4 |
|---|---|---|---|---|---|---|---|---|---|
| **Method 1** | 145 351 | 4% | <1% | 3% | <1% | 6% | 33% | 43% | 10% |
| **Method 2** | 138 967 | N/A | N/A | 4% | <1% | 6% | 34% | 45% | 10% |

Overall Level of Achievement in Mathematics — Grade 3

| | # = | Exempt | No Data | NEIS | NE1 | Level 1 | Level 2 | Level 3 | Level 4 |
|---|---|---|---|---|---|---|---|---|---|
| **Method 1** | 139 725 | 5% | <1% | 5% | <1% | 5% | 27% | 48% | 10% |
| **Method 2** | 132 870 | N/A | N/A | 6% | <1% | 5% | 28% | 51% | 10% |

Overall Level of Achievement in Mathematics — Grade 6

| | # = | Exempt | No Data | NEIS | NE1 | Level 1 | Level 2 | Level 3 | Level 4 |
|---|---|---|---|---|---|---|---|---|---|
| **Method 1** | 145 351 | 4% | <1% | 5% | <1% | 8% | 28% | 41% | 13% |
| **Method 2** | 139 137 | N/A | N/A | 5% | <1% | 9% | 30% | 43% | 13% |

## Year-to-Year Comparisons (Method 1)

Five-Year Trend in Grade 3 Reading

| | Exempt | No Data | NEIS | NE1 | Level 1 | Level 2 | Level 3 | Level 4 |
|---|---|---|---|---|---|---|---|---|
| **1997–1998** | 5% | 1% | 8% | | 6% | 34% | 42% | 4% |
| **1998–1999** | 6% | 1% | 2% | | 12% | 34% | 40% | 5% |
| **1999–2000** | 8% | <1% | 5% | <1% | 8% | 30% | 43% | 6% |
| **2000–2001** | 6% | 1% | 7% | <1% | 9% | 28% | 45% | 5% |
| **2001–2002** | 6% | <1% | 7% | <1% | 9% | 27% | 45% | 5% |

Four-Year Trend in Grade 6 Reading

| | Exempt | No Data | NEIS | NE1 | Level 1 | Level 2 | Level 3 | Level 4 |
|---|---|---|---|---|---|---|---|---|
| **1998–1999** | 4% | 1% | 3% | | 9% | 35% | 40% | 8% |
| **1999–2000** | 6% | <1% | 5% | 0% | 8% | 31% | 42% | 8% |
| **2000–2001** | 4% | <1% | 3% | <1% | 8% | 30% | 47% | 8% |
| **2001–2002** | 4% | <1% | 6% | <1% | 6% | 28% | 47% | 9% |

## Five-Year Trend in Grade 3 Writing

| | Exempt | No Data | NEIS | NE1 | Level 1 | Level 2 | Level 3 | Level 4 |
|---|---|---|---|---|---|---|---|---|
| 1997–1998 | 4% | 1% | 2% | | 5% | 39% | 42% | 7% |
| 1998–1999 | 5% | 1% | 2% | | 3% | 38% | 46% | 6% |
| 1999–2000 | 7% | <1% | 4% | 0% | 1% | 36% | 45% | 7% |
| 2000–2001 | 5% | 1% | 6% | 0% | 2% | 34% | 45% | 7% |
| 2001–2002 | 5% | <1% | 3% | <1% | 2% | 33% | 48% | 8% |

## Four-Year Trend in Grade 6 Writing

| | Exempt | No Data | NEIS | NE1 | Level 1 | Level 2 | Level 3 | Level 4 |
|---|---|---|---|---|---|---|---|---|
| 1998–1999 | 4% | 1% | 4% | | 9% | 35% | 37% | 11% |
| 1999–2000 | 6% | <1% | 5% | 0% | 8% | 34% | 38% | 10% |
| 2000–2001 | 4% | <1% | 5% | 0% | 7% | 32% | 43% | 10% |
| 2001–2002 | 4% | <1% | 3% | <1% | 6% | 33% | 43% | 10% |

## Five-Year Trend in Grade 3 Mathematics

| | Exempt | No Data | NEIS | NE1 | Level 1 | Level 2 | Level 3 | Level 4 |
|---|---|---|---|---|---|---|---|---|
| 1997–1998 | 4% | 3% | 4% | | 9% | 37% | 39% | 4% |
| 1998–1999 | 5% | 1% | 1% | | 8% | 29% | 46% | 10% |
| 1999–2000 | 6% | <1% | 2% | 0% | 6% | 28% | 46% | 11% |
| 2000–2001 | 5% | 1% | 4% | 0% | 4% | 26% | 49% | 11% |
| 2001–2002 | 5% | <1% | 5% | <1% | 5% | 27% | 48% | 10% |

## Four-Year Trend in Grade 6 Mathematics

| | Exempt | No Data | NEIS | NE1 | Level 1 | Level 2 | Level 3 | Level 4 |
|---|---|---|---|---|---|---|---|---|
| 1998–1999 | 4% | 1% | 3% | | 12% | 35% | 35% | 11% |
| 1999–2000 | 6% | <1% | 4% | 0% | 9% | 30% | 39% | 12% |
| 2000–2001 | 4% | <1% | 3% | 0% | 9% | 30% | 42% | 12% |
| 2001–2002 | 4% | <1% | 5% | <1% | 8% | 28% | 41% | 13% |

**Observations:**

- Grade 3 students continue to show slow but steady improvement in reading and writing over the past five years of the assessment.
- Following a significant improvement in achievement between the first and second year of the assessment, Grade 3 students' mathematics achievement has remained relatively stable.
- Following slow but steady improvements in achievement over the first three years of the assessment, the achievement of Grade 6 students in reading, writing and mathematics has remained the same.

## Detailed Reading Achievement by Category

*Grade 3*

| Category | # = | Average Score | Maximum |
|---|---|---|---|
| Reasoning | 124 783 | 9.6 | 20 |
| Communication | 125 719 | 9.8 | 20 |
| Organization of Ideas | 124 212 | 8.8 | 20 |
| Application of Language Conventions | 125 966 | 11.0 | 20 |

*Grade 6*

| Category | # = | Average Score | Maximum |
|---|---|---|---|
| Reasoning | 136 404 | 10.8 | 20 |
| Communication | 136 478 | 10.4 | 20 |
| Organization of Ideas | 138 066 | 10.5 | 20 |
| Application of Language Conventions | 136 523 | 10.2 | 20 |

## Detailed Writing Achievement by Category

*Grade 3*

| Category | # = | Average Score | Maximum |
|---|---|---|---|
| Reasoning | 128 131 | 5.0 | 8 |
| Communication | 128 139 | 5.1 | 8 |
| Organization of Ideas | 128 137 | 5.1 | 8 |
| Application of Language Conventions | 128 145 | 5.2 | 8 |

*Grade 6*

| Category | # = | Average Score | Maximum |
|---|---|---|---|
| Reasoning | 137 403 | 4.9 | 8 |
| Communication | 137 551 | 5.0 | 8 |
| Organization of Ideas | 137 442 | 4.9 | 8 |
| Application of Language Conventions | 137 557 | 5.2 | 8 |

## Detailed Mathematics Achievement by Category and Strand

*Grade 3*

| Category | # = | Average Score | Maximum |
|---|---|---|---|
| Problem Solving | 129 982 | 9.5 | 20 |
| Understanding of Concepts | 130 412 | 10.4 | 20 |
| Application of Mathematical Procedures | 131 611 | 11.3 | 20 |
| Communication of Required Knowledge | 131 230 | 9.1 | 20 |
| **Strand** | | | |
| Number Sense and Numeration | 130 624 | 13.5 | 24 |
| Geometry and Spatial Sense | 131 523 | 13.8 | 24 |
| Measurement | 130 850 | 12.4 | 24 |
| Patterning and Algebra | 131 047 | 14.3 | 24 |
| Data Management and Probability | 131 296 | 13.7 | 24 |

*Grade 6*

| **Category** | **# =** | **Average Score** | **Maximum** |
|---|---|---|---|
| Problem Solving | 137 285 | 10.1 | 20 |
| Understanding of Concepts | 137 972 | 11.6 | 20 |
| Application of Mathematical Procedures | 137 084 | 11.5 | 20 |
| Communication of Required Knowledge | 137 729 | 9.8 | 20 |
| **Strand** | | | |
| Number Sense and Numeration | 137 901 | 14.1 | 24 |
| Geometry and Spatial Sense | 136 870 | 13.7 | 24 |
| Measurement | 137 338 | 13.2 | 24 |
| Patterning and Algebra | 137 415 | 14.1 | 24 |
| Data Management and Probability | 137 727 | 13.5 | 24 |

## Overall Achievement in Reading by Subgroup

*Grade 3*

| | | # = | Exempt | No Data | NEIS | NE 1 | Level 1 | Level 2 | Level 3 | Level 4 |
|---|---|---|---|---|---|---|---|---|---|---|
| **Gender** | Boys | 70 212 | 7% | <1% | 8% | <1% | 10% | 29% | 42% | 4% |
| | Girls | 66 112 | 4% | <1% | 6% | <1% | 8% | 26% | 49% | 7% |
| **Language** | In ESL | 7 617 | 25% | 1% | 6% | 1% | 15% | 28% | 22% | 2% |
| | All Other Students | 129 271 | 5% | <1% | 7% | <1% | 8% | 27% | 46% | 5% |
| **Special Needs** | Special Needs | 22 999 | 27% | <1% | 11% | 1% | 19% | 27% | 14% | 1% |
| | All Other Students | 113 889 | 2% | <1% | 6% | <1% | 7% | 28% | 51% | 6% |

*Grade 6*

| | | # = | Exempt | No Data | NEIS | NE 1 | Level 1 | Level 2 | Level 3 | Level 4 |
|---|---|---|---|---|---|---|---|---|---|---|
| **Gender** | Boys | 73 975 | 5% | <1% | 7% | <1% | 8% | 32% | 42% | 5% |
| | Girls | 70 309 | 3% | <1% | 4% | <1% | 5% | 24% | 52% | 12% |
| **Language** | In ESL | 5 208 | 28% | 1% | 8% | 1% | 13% | 26% | 20% | 2% |
| | All Other Students | 140 143 | 3% | <1% | 6% | <1% | 6% | 28% | 48% | 9% |
| **Special Needs** | Special Needs | 23 322 | 20% | <1% | 11% | 1% | 18% | 35% | 15% | 1% |
| | All Other Students | 122 029 | 1% | <1% | 5% | <1% | 4% | 27% | 53% | 10% |

**Observations:**

- In both Grade 3 and Grade 6, girls outperformed boys in reading.
- Nearly one-quarter of ESL students achieved the provincial standard in reading: Grade 3 (24%), Grade 6 (22%).
- Among students receiving special education, 15% of Grade 3 students and 16% of Grade 6 students achieved the provincial standard in reading.

## Overall Achievement in Writing by Subgroups

*Grade 3*

| | | # = | Exempt | No Data | NEIS | NE 1 | Level 1 | Level 2 | Level 3 | Level 4 |
|---|---|---|---|---|---|---|---|---|---|---|
| **Gender** | Boys | 70 210 | 7% | <1% | 4% | <1% | 3% | 39% | 42% | 5% |
| | Girls | 66 112 | 4% | <1% | 3% | <1% | 1% | 28% | 53% | 11% |
| **Language** | In ESL | 7 617 | 23% | 1% | 4% | <1% | 3% | 39% | 28% | 2% |
| | All Other Students | 129 269 | 4% | <1% | 3% | <1% | 2% | 33% | 49% | 8% |
| **Special Needs** | Special Needs | 22 997 | 24% | <1% | 7% | 1% | 7% | 47% | 13% | <1% |
| | All Other Students | 113 889 | 2% | <1% | 3% | <1% | 1% | 31% | 54% | 9% |

*Grade 6*

| | | # = | Exempt | No Data | NEIS | NE 1 | Level 1 | Level 2 | Level 3 | Level 4 |
|---|---|---|---|---|---|---|---|---|---|---|
| **Gender** | Boys | 73 975 | 5% | <1% | 4% | <1% | 9% | 38% | 38% | 6% |
| | Girls | 70 308 | 3% | <1% | 3% | <1% | 3% | 27% | 50% | 14% |
| **Language** | In ESL | 5 208 | 28% | 1% | 4% | <1% | 13% | 34% | 19% | 3% |
| | All Other Students | 140 142 | 3% | <1% | 3% | <1% | 6% | 33% | 44% | 10% |
| **Special Needs** | Special Needs | 23 321 | 19% | <1% | 6% | <1% | 19% | 42% | 12% | 1% |
| | All Other Students | 122 029 | 1% | <1% | 3% | <1% | 4% | 31% | 49% | 12% |

**Observations:**

- In both Grade 3 and Grade 6, girls outperformed boys in writing.
- Among ESL students, 30% of Grade 3 students and 22% of Grade 6 achieved the provincial standard in writing.
- Among students receiving special education support, 13% of Grade 3 students and 13% of Grade 6 students achieved the provincial standard in writing.

## Overall Achievement in Mathematics by Subgroup

*Grade 3*

| | | # = | Exempt | No Data | NEIS | NE 1 | Level 1 | Level 2 | Level 3 | Level 4 |
|---|---|---|---|---|---|---|---|---|---|---|
| **Gender** | Boys | 71 426 | 6% | <1% | 6% | <1% | 5% | 26% | 48% | 10% |
| | Girls | 67 705 | 4% | <1% | 5% | <1% | 5% | 28% | 49% | 10% |
| **Language** | In ESL | 7 625 | 20% | 1% | 5% | <1% | 7% | 28% | 34% | 6% |
| | All Other Students | 132 100 | 4% | <1% | 5% | <1% | 4% | 27% | 49% | 10% |
| **Special Needs** | Special Needs | 23 158 | 22% | <1% | 7% | 1% | 11% | 34% | 24% | 2% |
| | All Other Students | 116 567 | 1% | <1% | 5% | <1% | 3% | 25% | 53% | 11% |

*Grade 6*

| | | # = | Exempt | No Data | NEIS | NE 1 | Level 1 | Level 2 | Level 3 | Level 4 |
|---|---|---|---|---|---|---|---|---|---|---|
| **Gender** | Boys | 73 975 | 5% | <1% | 6% | <1% | 9% | 28% | 40% | 12% |
| | Girls | 70 309 | 3% | <1% | 5% | <1% | 8% | 29% | 42% | 13% |
| **Language** | In ESL | 5 208 | 23% | 1% | 6% | <1% | 12% | 23% | 26% | 9% |
| | All Other Students | 140 143 | 3% | <1% | 5% | <1% | 8% | 29% | 41% | 13% |
| **Special Needs** | Special Needs | 23 322 | 20% | <1% | 9% | 1% | 22% | 31% | 15% | 1% |
| | All Other Students | 122 029 | 1% | <1% | 4% | <1% | 6% | 28% | 46% | 15% |

**Observations:**

- In both Grade 3 and Grade 6, girls slightly outperformed boys in mathematics.
- Among ESL students, 40% of Grade 3 students and 35% of Grade 6 achieved the provincial standard in mathematics.
- Among students receiving special education support, 26% of Grade 3 students and 16% of Grade 6 students achieved the provincial standard in mathematics.

## Overall Achievement in Grade 3 French Immersion (Method 1)

The following tables provide achievement information according to three options. For Grade 3 students in French Immersion classes, school boards must choose one of the following three options:

**Option A:** Students complete all components of the assessment (reading, writing and mathematics) in English; or

**Option B:** Students complete the reading and writing components in English and the mathematics component in a French translation or

**Option C:** Students complete only the mathematics component in a French translation. (These students do not complete the reading and writing components and will receive results only for mathematics.)

*Option A: Reading, Writing and Mathematics in English (# = 3391)*

| | Exempt | No Data | NEIS | NE1 | Level 1 | Level 2 | Level 3 | Level 4 |
|---|---|---|---|---|---|---|---|---|
| **Reading** | 2% | <1% | 7% | <1% | 7% | 25% | 52% | 8% |
| **Writing** | 2% | <1% | 3% | <1% | 2% | 29% | 53% | 11% |
| **Mathematics** | 2% | <1% | 5% | <1% | 4% | 25% | 54% | 9% |

*Option B: Reading and Writing in English; Mathematics in French (# = 3048)*

| | Exempt | No Data | NEIS | NE1 | Level 1 | Level 2 | Level 3 | Level 4 |
|---|---|---|---|---|---|---|---|---|
| **Reading** | 2% | <1% | 9% | <1% | 7% | 25% | 52% | 5% |
| **Writing** | 2% | <1% | 4% | <1% | 2% | 32% | 52% | 8% |
| **Mathematics** | 1% | <1% | 8% | <1% | 2% | 22% | 56% | 11% |

*Option C: Mathematics in French (# = 2839)*

| | Exempt | No Data | NEIS | NE1 | Level 1 | Level 2 | Level 3 | Level 4 |
|---|---|---|---|---|---|---|---|---|
| **Mathematics** | 1% | <1% | 5% | <1% | 1% | 17% | 57% | 19% |

**Observations:**

- More than one-half of the French Immersion students achieved the provincial standard in reading, writing and mathematics.
- A greater percentage of French Immersion students achieved the provincial standard in reading when they wrote reading, writing and mathematics in English (60%) than those who wrote reading and writing in English and mathematics in French (57%).
- A greater percentage of French Immersion students achieved the provincial standard in writing when they wrote reading, writing and mathematics in English (64%) than those who wrote reading and writing in English and mathematics in French (60%).
- A greater percentage of French Immersion students achieved the provincial standard in mathematics when they wrote mathematics in French (74%) than those who wrote reading and writing in English and mathematics in French (67%) and those who wrote reading, writing and mathematics in English (63%).

# *Grade 3 Contextual Information from Questionnaires*

The following section provides information from the Grade 3 student and teacher questionnaires.

## Contextual Information from the Student Questionnaire

### Response Rate

| Province | | |
|---|---|---|
| **All Students** | **Completed Questionnaires** | **Response Rate** |
| 139 292 | 133 942 | 96% |

### Student Computer Use and Language Spoken at Home

| **Percentage of students indicating that** | **Province** | | |
|---|---|---|---|
| | **All (# = 133 942)** | **Girls (# = 65 458)** | **Boys (# = 68 303)** |
| at home, they speak mostly or only English. | 82% | 82% | 82% |
| at home, other people speak mostly or only English to them. | 79% | 79% | 79% |
| at home, there is a computer for them to use for school work. | 53% | 54% | 51% |

Note: All students were asked to complete the above questions. Subsets of students were asked to respond to the questions below.

### Reading

*Student Attitudes Toward Reading*

| **Percentage of students indicating that** | **Province** | | |
|---|---|---|---|
| | **All (# = 88 726)** | **Girls (# = 43 419)** | **Boys (# = 45 192)** |
| they think they are good readers. | 66% | 68% | 64% |
| they like to read. | 72% | 80% | 65% |

**Observations:**

- There is a significant difference between the percentages of girls and boys who like to read.
- An increase in the percentage of students who say they are good readers was found this year. (See the following table.)

| I am a good reader. | | | | | |
|---|---|---|---|---|---|
| | **1997–1998** | **1998–1999** | **1999–2000** | **2000–2001** | **2001–2002** |
| Yes | 55% | 62% | 63% | 62% | 66% |

*Student Reading Habits*

| **Percentage of students indicating that** | **Province** | | |
|---|---|---|---|
| | **All (# = 88 726)** | **Girls (# = 43 419)** | **Boys (# = 45 192)** |
| they do reading that is not part of their work for school. | 59% | 64% | 54% |
| they read by themselves at home. | 65% | 68% | 61% |
| they read with others at home. | 28% | 28% | 28% |
| they read by themselves at school. | 75% | 76% | 75% |
| they talk to people about what they read. | 30% | 31% | 29% |

**Observations:**

- A significantly larger percentage of girls than boys indicated that they read material that is not part of their work in school and that they read by themselves at home.
- This year, a smaller percentage of students than in previous years reported that they talk to people about what they read.
- This year, a larger percentage of students than in previous years indicated that they do reading that is not part of their school work. (See the following tables.)

| I talk to people about what I read. | | | | | |
|---|---|---|---|---|---|
| | **1997–1998** | **1998–1999** | **1999–2000** | **2000–2001** | **2001–2002** |
| Yes | not asked | 34% | 36% | 36% | 30% |

| I do reading that is not part of my school work. | | | | | |
|---|---|---|---|---|---|
| | **1997–1998** | **1998–1999** | **1999–2000** | **2000–2001** | **2001–2002** |
| Yes | 56% | 54% | 55% | 53% | 59% |

*Student Reading Preferences*

| Percentage of students indicating that they like to read | Province | | |
|---|---|---|---|
| | All (# = 88 726) | Girls (# = 43 419) | Boys (# = 45 192) |
| picture books. | 39% | 38% | 40% |
| chapter books or novels. | 73% | 76% | 70% |
| information books, Web sites or e-mail messages. | 49% | 48% | 50% |
| poems. | 45% | 57% | 34% |
| newspapers. | 16% | 13% | 20% |
| magazines. | 47% | 48% | 46% |
| comic books. | 53% | 40% | 65% |

**Observations:**

- There is a significant difference in the reading preferences of girls and boys.

## Writing

*Student Attitudes Toward Writing*

| Percentage of students indicating that | Province | | |
|---|---|---|---|
| | All (# = 88 383) | Girls (# = 43 215) | Boys (# = 45 048) |
| they are good writers. | 52% | 58% | 47% |
| they like to write. | 61% | 69% | 54% |

**Observations:**

- A significantly larger percentage of girls than boys say that they are good writers and that they like to write. This has remained a consistent trend through the years.

*Student Writing Habits*

| Percentage of students indicating that | Province | | |
|---|---|---|---|
| | **All (# = 88 383)** | **Girls (# = 43 215)** | **Boys (# = 45 048)** |
| they do writing that is not part of their work for school. | 46% | 53% | 40% |
| they use a computer for writing. | 27% | 27% | 27% |
| they talk to someone about their topic before they start writing. | 20% | 20% | 21% |
| they take time to plan what they are going to write before they start writing. | 70% | 72% | 68% |
| they read their work and correct their mistakes when they finish writing. | 64% | 68% | 59% |
| they share a good copy with others. | 52% | 56% | 49% |

**Observations:**

- A significantly larger percentage of girls than boys report that they do writing that is not part of their school work; they read their work and correct their mistakes and they share a good copy with others.
- No large gender differences can be seen in students' use of a computer for writing or in their planning for writing.
- The trend over the years has remained fairly consistent, with the exception of the percentage of students reporting that they correct their mistakes. The percentage of students reporting this has dropped from 70% last year to 64% this year. (See the following table.)

| **I correct my mistakes.** | | | | | |
|---|---|---|---|---|---|
| | **1997–1998** | **1998–1999** | **1999–2000** | **2000–2001** | **2001–2002** |
| Yes | 65% | 68% | 72% | 70% | 64% |

*Student Writing Preferences*

| Percentage of students indicating that they like to write | Province | | |
|---|---|---|---|
| | All (# = 88 383) | Girls (# = 43 215) | Boys (# = 45 048) |
| stories. | 62% | 67% | 57% |
| reports. | 35% | 39% | 32% |
| poems. | 37% | 49% | 26% |
| journals or diaries. | 48% | 66% | 31% |
| letters, cards or e-mail messages. | 60% | 67% | 53% |

**Observations:**

- There are some persistent gender differences in writing preferences. This has remained consistent through the years.

## Mathematics

*Student Attitudes Toward Mathematics*

| Percentage of students indicating that | Province | | |
|---|---|---|---|
| | All (# = 88 019) | Girls (# = 42 974) | Boys (# = 44 921) |
| they think they are good at mathematics. | 52% | 44% | 61% |
| they think mathematics is easy. | 35% | 27% | 42% |
| they understand the mathematics that they do in school. | 52% | 46% | 58% |
| they like mathematics. | 62% | 57% | 66% |

**Observations:**

- A little more than half the students say they are good at mathematics and that they understand the mathematics they do in school.
- A significantly larger percentage of boys than girls reported that they think they are good at mathematics; they think mathematics is easy; they understand the mathematics they do in school and they like mathematics.

*Application of Mathematics*

| Percentage of students indicating that | Province | | |
|---|---|---|---|
| | All (# = 88 019) | Girls (# = 42 974) | Boys (# = 44 921) |
| they do mathematics that is not part of their work for school. | 40% | 41% | 39% |
| they use a calculator to learn mathematics at school. | 18% | 18% | 19% |
| they use a computer to learn mathematics at school. | 22% | 22% | 22% |
| they use mathematics to solve problems outside school. | 34% | 33% | 35% |
| they talk to people about the mathematics that they do. | 20% | 21% | 19% |

*Student Mathematics Preferences*

| Percentage of students indicating that they like | Province | | |
|---|---|---|---|
| | All (# = 88 019) | Girls (# = 42 974) | Boys (# = 44 921) |
| doing number questions. | 62% | 59% | 65% |
| measuring things. | 54% | 54% | 55% |
| making patterns. | 65% | 73% | 58% |
| building structures. | 75% | 69% | 81% |
| drawing graphs, charts or diagrams. | 47% | 52% | 42% |
| working with shapes. | 58% | 61% | 54% |
| estimating or predicting results. | 55% | 53% | 56% |
| solving mathematical problems. | 51% | 45% | 56% |

**Observations:**

- Gender differences can be seen in the types of mathematics students do: a larger percentage of boys than girls say they like doing number questions, building structures and solving mathematical problems. A larger percentage of girls than boys report that they like making patterns, drawing graphs, charts or diagrams and working with shapes.

## Teaching Practices

### Language

*Teaching and Assessment Resources for Reading and Writing*

| Percentage of teachers indicating that | Province | |
|---|---|---|
| | Reading (# = 6800) | Writing (# = 6800) |
| **the following resources are "accessible" or "very accessible" to them:** | | |
| classroom materials | 92% | 77% |
| library/resource centre language materials | 82% | 64% |
| computers | 68% | 67% |
| language-related computer software | 57% | 55% |
| board resource personnel | 50% | 49% |
| board language assessment materials | 66% | 61% |
| school/library language assessment materials | 58% | 53% |
| classroom resources for assessing language | 76% | 70% |
| **the following resources are "very useful" or "indispensable" to them for teaching and assessing:** | | |
| the Ontario Curriculum Unit Planner | 18% | 18% |
| the four-level achievement chart in the curriculum | 56% | 55% |
| EQAO assessment materials | 49% | 48% |
| Ministry exemplars and rationales | 51% | 50% |
| assessment tools they have developed | 80% | 78% |
| assessment tools developed by teachers in their school | 47% | 45% |
| assessment tools developed by their boards | 37% | 35% |
| assessment tools developed by other boards | 18% | 17% |
| commercially published language assessment | 36% | 33% |

**Observations:**

- Teachers indicate that they use a variety of assessment tools in readir ; and writing.

*Teaching and Assessment Resources for Mathematics*

| Percentage of teachers indicating that | Province<br>All<br>(# = 6800) |
|---|---|
| **the following resources are "accessible" or "very accessible" to them:** | |
| mathematics textbooks and/or workbooks | 90% |
| manipulatives | 87% |
| library/resource centre mathematics materials | 53% |
| calculators | 80% |
| computers | 70% |
| mathematics computer software | 61% |
| board resource personnel | 43% |
| teacher mathematics manuals | 87% |
| board mathematics assessment materials | 55% |
| school/library mathematics assessment materials | 45% |
| classroom resources for assessing mathematics | 78% |
| **the following resources are "very useful" or "indispensable" to them:** | |
| the Ontario Curriculum Unit Planner | 21% |
| the four-level achievement chart in the mathematics curriculum | 54% |
| EQAO mathematics assessment materials | 52% |
| assessment tools they have developed | 79% |
| assessment tools developed by teachers in their school | 43% |
| assessment tools developed by their boards | 29% |
| assessment tools developed by other boards | 16% |
| commercially published mathematics assessment materials | 43% |

**Observations:**

- Teachers indicate that they use a variety of assessment tools in mathematics.

| Percentage of teachers indicating that they | Province |
|---|---|
| | All (# = 6800) |
| have been teaching for **more than 2 years.** | 84% |
| have taught in the primary grades for **more than two years.** | 75% |
| have taught Grade 3 for **more than two years.** | 55% |

**Observations:**

- While 84% of the teachers have been teaching more than two years, only 55% have been teaching Grade 3 for more than two years.

| Percentage of teachers indicating that they have had the following professional development: | Province | | |
|---|---|---|---|
| | Reading (# = 6800) | Writing (# = 6800) | Mathematics (# = 6800) |
| school-related activities | 78% | 72% | 64% |
| board-related activities | 86% | 78% | 68% |
| ministry-related activities | 29% | 25% | 22% |
| EQAO-related activities | 55% | 51% | 51% |
| self-instruction/professional reading | 77% | 74% | 68% |
| seminars, workshops and conferences | 77% | 69% | 61% |
| graduate studies | 12% | 9% | 6% |

**Observations:**

- Grade 3 teachers are participating in board-related activities more than other types of professional development.

*Additional Qualifications (AQ)*

| Percentage of teachers indicating that they have completed or are presently working toward the following: | Province | | |
|---|---|---|---|
| | AQ Courses in Reading (# = 6800) | AQ Courses in Writing (# = 6800) | AQ Courses in Mathematics (# = 6800) |
| Part 1 | 13% | 2% | 4% |
| Part 2 | 4% | 1% | 1% |
| Specialist | 5% | 1% | 1% |

| | Province |
|---|---|
| | All (# = 6800) |
| other AQ courses with a focus on reading and writing | 37% |
| other AQ courses with a focus on mathematics | 17% |
| other specialized training course in teaching reading, writing or mathematics | 51% |

# *Grade 6 Contextual Information from Questionnaires*

The following section provides information from the Grade 6 student and teacher questionnaires.

## Contextual Information from the Student Questionnaire

### Response Rate

| Province | | |
|---|---|---|
| **All Students** | **Completed Questionnaires** | **Response Rate** |
| 145 351 | 139 327 | 96% |

### Student Computer Use and Language Spoken at Home

| **Percentage of students indicating that,** | **Province** | | |
|---|---|---|---|
| | **All (# = 139 327)** | **Girls (# = 68 194)** | **Boys (# = 70 942)** |
| at home, they speak mostly or only English. | 84% | 83% | 83% |
| at home, other people speak mostly or only English to them. | 80% | 80% | 81% |
| at home, there is a computer for them to use for school work. | 83% | 84% | 82% |

**Observations:**

- The majority of Grade 6 students report that they speak English at home and have access to a computer for school work.

Note: All students were asked to complete the above questions. Subsets of students were asked to respond to the questions below.

### Reading

*Student Attitudes Toward Reading*

| **Percentage of students indicating that** | **Province** | | |
|---|---|---|---|
| | **All (# = 86 147)** | **Girls (# = 42 161)** | **Boys (# = 43 863)** |
| they think they are good readers. | 63% | 66% | 60% |
| they like to read. | 60% | 68% | 52% |

**Observations:**

- A larger percentage of girls than boys indicate they like to read and think they are good readers.
- This has remained a consistent trend through the years.

*Student Reading Habits*

| Percentage of students indicating that | Province | | |
|---|---|---|---|
| | All (# = 86 147) | Girls (# = 42 161) | Boys (# = 43 863) |
| they do reading that is not part of their work for school. | 56% | 64% | 50% |
| they read at home. | 65% | 72% | 58% |
| they read with others at home. | 15% | 17% | 14% |
| they read at school. | 80% | 82% | 77% |
| they talk to people about what they read. | 25% | 27% | 24% |

**Observations:**

- A significantly larger percentage of girls than boys indicated that they read at home and that they do reading that is not part of their work for school.
- The trends through the years have remained fairly consistent, with the exception of the percentage of students indicating that they talk to people about what they read. This year the percentage of students reporting this has dropped from 31% last year to 25% this year. (See the following table.)

| I talk to people about what I read. | | | | |
|---|---|---|---|---|
| | 1998–1999 | 1999–2000 | 2000–2001 | 2001–2002 |
| Yes | 29% | 30% | 31% | 25% |

*Student Reading Preferences*

| Percentage of students indicating that they like to read | Province | | |
|---|---|---|---|
| | All (# = 86 147) | Girls (# = 42 161) | Boys (# = 43 863) |
| chapter books or novels. | 69% | 73% | 64% |
| information books, Web sites or e-mail messages. | 63% | 64% | 61% |
| poems. | 29% | 40% | 19% |
| newspapers. | 19% | 14% | 24% |
| magazines. | 61% | 68% | 54% |
| comic books. | 45% | 35% | 55% |

**Observations:**

- A larger percentage of girls than boys read chapter books or novels, poems and magazines. A larger percentage of boys than girls read newspapers and comic books.
- A smaller percentage of students this year indicated that they like to read chapter books or novels. (See the following table.)

| I like to read chapter books or novels. | | | | |
|---|---|---|---|---|
| | 1998–1999 | 1999–2000 | 2000–2001 | 2001–2002 |
| Yes | 71% | 73% | 74% | 69% |

## Writing

*Student Attitudes Toward Writing*

| Percentage of students indicating that | Province | | |
|---|---|---|---|
| | All (# = 85 679) | Girls (# = 41 966) | Boys (# = 43 593) |
| they think they are good writers | 42% | 47% | 38% |
| they like to write | 47% | 56% | 38% |

**Observations:**

- A larger percentage of girls than boys say that they are good writers and that they like to write. This has remained a consistent trend over the years.

*Student Writing Habits*

| Percentage of students indicating that | Province | | |
|---|---|---|---|
| | All (# = 85 679) | Girls (# = 41 966) | Boys (# = 43 593) |
| they do writing that is not part of their work for school. | 38% | 45% | 31% |
| they use a computer for writing. | 38% | 37% | 39% |
| they talk to someone about their topic before they start writing. | 22% | 21% | 22% |
| they take time to plan what they are going to write before they start writing. | 58% | 59% | 57% |
| they read their work and correct their mistakes when they finish writing. | 61% | 68% | 55% |
| they share a good copy with others. | 52% | 57% | 48% |

**Observations:**

- A larger percentage of girls than boys report that they do writing that is not part of their school work; they read their work and correct their mistakes and they share a good copy with others.
- No significant gender differences can be seen in students' use of a computer for writing, planning for writing or talking to someone about their topic.
- The trends through the years have remained fairly consistent, with the exception of students' reporting that they correct their mistakes. The percentage of students reporting this has dropped from 67% last year to 61% this year. (See the following table.)

| When I finish writing, I read my work and correct my mistakes. | | | | |
|---|---|---|---|---|
| | 1998–1999 | 1999–2000 | 2000–2001 | 2001–2002 |
| Yes | 65% | 69% | 67% | 61% |

*Student Writing Preferences*

| Percentage of students indicating that they like to write | Province | | |
|---|---|---|---|
| | All (# = 85 679) | Girls (# = 41 966) | Boys (# = 43 593) |
| stories. | 46% | 52% | 40% |
| reports. | 22% | 25% | 19% |
| poems. | 35% | 43% | 27% |
| journals or diaries. | 33% | 54% | 12% |
| letters, cards or e-mail messages. | 67% | 79% | 56% |

**Observations:**

- There are some persistent gender differences in writing preferences.
- A smaller percentage of students indicated that they like to write stories this year compared to previous years. Also, more students reported that they like to write poems this year than in past years. (See the following table.)

| I like to write stories. | | | | |
|---|---|---|---|---|
| | 1998–1999 | 1999–2000 | 2000–2001 | 2001–2002 |
| Yes | 54% | 55% | 55% | 46% |

| I like to write poems. | | | | |
|---|---|---|---|---|
| | 1998–1999 | 1999–2000 | 2000–2001 | 2001–2002 |
| Yes | 30% | 30% | 29% | 35% |

## Mathematics

*Student Attitudes Toward Mathematics*

| Percentage of students indicating that | Province | | |
|---|---|---|---|
| | All (# = 85 385) | Girls (# = 41 863) | Boys (# = 43 396) |
| they think they are good at mathematics. | 49% | 39% | 58% |
| they think mathematics is easy. | 28% | 21% | 36% |
| they understand the mathematics that they do in school. | 54% | 48% | 61% |
| they like mathematics. | 50% | 43% | 56% |

**Observations:**

- Almost half the students say they are good at mathematics; half say they like mathematics and a little more than half say they understand the mathematics they do in school.
- A significantly larger percentage of boys than girls reported that they are good at mathematics; they think mathematics is easy; they understand the mathematics they do in school and they like mathematics.
- These trends are consistent through the years.

*Application of Mathematics*

| Percentage of students indicating that | Province | | |
|---|---|---|---|
| | All (# = 85 385) | Girls (# = 41 863) | Boys (# = 43 396) |
| they do mathematics that is not part of their work for school. | 31% | 28% | 34% |
| they use a calculator to do mathematics at school. | 9% | 9% | 9% |
| they use a computer to do mathematics at school. | 6% | 6% | 7% |
| they use mathematics to solve problems outside school. | 41% | 37% | 45% |
| they talk to people about the mathematics that they do. | 25% | 26% | 23% |

**Observations:**

- A significantly larger percentage of boys than girls report using mathematics to solve problems outside school.
- A smaller percentage of students than in past years indicated that they do mathematics that is not part of their school work. (See the following table.)

| I do mathematics that is not part of my work for school. | | | | |
|---|---|---|---|---|
| | 1998–1999 | 1999–2000 | 2000–2001 | 2001–2002 |
| Yes | 34% | 37% | 36% | 31% |

*Student Mathematics Preferences*

| Percentage of students indicating that they like | Province | | |
|---|---|---|---|
| | All (# = 85 385) | Girls (# = 41 863) | Boys (# = 43 396) |
| doing number questions. | 56% | 54% | 58% |
| measuring things. | 41% | 36% | 46% |
| making patterns. | 54% | 59% | 49% |
| building structures. | 68% | 59% | 78% |
| drawing graphs, charts or diagrams. | 43% | 47% | 40% |
| working with shapes. | 49% | 49% | 49% |
| estimating or predicting results. | 38% | 32% | 43% |
| solving mathematical problems. | 39% | 33% | 45% |

**Observations:**

- A larger percentage of boys than girls say they like measuring things, doing number questions, building structures, estimating or predicting results and solving mathematical problems. A larger percentage of girls than boys report that they like making patterns and drawing graphs, charts or diagrams.
- This is a consistent trend through the years.

## Teaching Practices

### Language

*Teaching and Assessment Resources for Reading and Writing*

| Percentage of teachers indicating that | Province | |
|---|---|---|
| | Reading (# = 6206) | Writing (# = 6206) |
| **the following resources are "accessible" or "very accessible" to them:** | | |
| classroom materials | 85% | 77% |
| library/resource centre language materials | 78% | 64% |
| computers | 63% | 62% |
| language-related computer software | 43% | 46% |
| board resource personnel | 46% | 45% |
| board language assessment materials | 61% | 58% |
| school/library language assessment materials | 53% | 51% |
| classroom resources for assessing language | 69% | 67% |
| **the following resources are "very useful" or "indispensable" to them for teaching and assessing:** | | |
| the Ontario Curriculum Unit Planner | 16% | 16% |
| the four-level achievement chart in the curriculum | 53% | 52% |
| EQAO assessment materials | 45% | 42% |
| Ministry exemplars and rationales | 46% | 45% |
| assessment tools they have developed | 82% | 79% |
| assessment tools developed by teachers in their school | 50% | 48% |
| assessment tools developed by their boards | 35% | 34% |
| assessment tools developed by other boards | 20% | 19% |
| commercially published language assessment materials | 34% | 33% |

**Observations:**

- Teachers indicate that they use a variety of assessment tools in reading and writing.

## Mathematics

*Teaching and Assessment Resources for Mathematics*

| Percentage of teachers indicating that | Province<br>All<br>(# = 6130) |
|---|---|
| **the following resources are "accessible" or "very accessible" to them:** | |
| mathematics textbooks and/or workbooks | 86% |
| manipulatives | 76% |
| library/resource centre mathematics materials | 48% |
| calculators | 78% |
| computers | 64% |
| mathematics computer software | 53% |
| board resource personnel | 44% |
| teacher mathematics manuals | 81% |
| board mathematics assessment materials | 56% |
| school/library mathematics assessment materials | 44% |
| classroom resources for assessing mathematics | 75% |
| **the following resources are "very useful" or "indispensable" to them:** | |
| the Ontario Curriculum Unit Planner | 18% |
| the four-level achievement chart in the mathematics curriculum | 50% |
| EQAO mathematics assessment materials | 48% |
| assessment tools they have developed | 78% |
| assessment tools developed by teachers in their school | 46% |
| assessment tools developed by their boards | 30% |
| assessment tools developed by other boards | 18% |
| commercially published mathematics assessment materials | 43% |

**Observations:**

- Teachers indicate that they use a variety of assessment tools in mathematics.

| Percentage of teachers indicating that they | Province |
|---|---|
| | **All (# =7261)** |
| have been teaching for **more than two years** | 78% |
| have taught in the primary grades for **more than two years** | 65% |
| have taught Grade 6 for **more than two years** | 50% |

**Observations:**

- While 78% of the teachers have been teaching for more than two years, only 50% have been teaching Grade 6 for more than two years.

| Percentage of teachers indicating that they have had the following professional development: | Province | | |
|---|---|---|---|
| | **Reading (# = 7261)** | **Writing (# = 7261)** | **Mathematics (# = 7261)** |
| school-related activities | 69% | 67% | 58% |
| board-related activities | 74% | 70% | 66% |
| ministry-related activities | 22% | 20% | 19% |
| EQAO-related activities | 48% | 46% | 46% |
| self instruction/professional reading | 65% | 63% | 59% |
| seminars, workshops and conferences | 63% | 59% | 55% |
| graduate studies | 11% | 9% | 6% |

**Observations:**

- Grade 6 teachers are participating in board-related activities more than other types of professional development.

*Additional Qualifications (AQ)*

| Percentage of teachers indicating that they have completed or are presently working toward the following: | Province | | |
|---|---|---|---|
| | AQ Courses in Reading (# = 7261) | AQ Courses in Writing (# = 7261) | AQ Courses in Mathematics (# = 7261) |
| Part 1 | 9% | 2% | 3% |
| Part 2 | 3% | <1% | 1% |
| Specialist | 4% | 1% | 1% |

| | Province |
|---|---|
| | All (# = 7261) |
| other AQ courses with a focus on reading and writing | 27% |
| other AQ courses with a focus on mathematics | 16% |
| other specialized training course in teaching reading, writing or mathematics | 38% |

## Contextual Information from the Principal Questionnaire

### Principals' Experience and Professional Development

| Percentage of principals indicating that | Province |
|---|---|
| | All (#=3459) |
| they have been principal of their school for more than **five years.** | 8% |
| in the past two years, they have had professional development in | |
| **Reading and/or Writing Instruction** | |
| graduate studies | 3% |
| seminars, workshops and conferences | 92% |
| self instruction/professional reading | 68% |
| **Reading and/or Writing Assessment and Evaluation** | |
| graduate studies | 3% |
| seminars, workshops and conferences | 92% |
| self-instruction/professional reading | 65% |
| **Mathematics Instruction** | |
| graduate studies | 1% |
| seminars, workshops and conferences | 55% |
| self-instruction/professional reading | 58% |
| **Mathematics Assessment and Evaluation** | |
| graduate studies | 1% |
| seminars, workshops and conferences | 59% |
| self-instruction/professional reading | 59% |

**Observations:**

- Professional development through seminars, workshops and conferences is the most common form.

# *Recommendations*

The following recommendations are based on

- the 2001 2002 overall and category-specific achievement results;
- the patterns and trends emerging from the overall results year to year;
- the data collected from the various questionnaires and
- suggestions from the trained teacher markers at the EQAO marking centres.

## Planning for Improvement

### EQAO recommends

- that the **Ministry of Education** use the Grade 3 and Grade 6 provincial assessment data accumulated over the past five years to stimulate literacy and numeracy especially in the Early Reading and Mathematics Initiatives, at the board, school and classroom levels.
- that the **Ontario College of Teachers** ensure that there is a balance of courses on core competencies through Professional Learning Program providers, to allow teachers across the province ample opportunities for professional development that focuses on the relationships among curriculum, teaching practices and assessment, essential to teaching and learning.
- that the **faculties of education** assist pre-service teachers in developing an awareness and understanding of the links among curriculum, teaching practices and assessment. Pre-service teachers must have exposure to a wide variety of assessment strategies, including large-scale, performance-based assessment.
- that **school boards** carefully review their improvement plans in relation to the board data that they have accumulated over the past five years from the Grade 3 and Grade 6 provincial assessments and revise their improvement plans, using the *EQAO Guide to School and Board Improvement Planning, April 2002*.
- that **school boards** examine the assessment results from all of their schools and identify those that are improving, in order to identify factors that relate to improvement and that they share such information to develop improvement strategies board-wide.
- that **school boards and schools** analyze disaggregated as well as aggregated achievement and contextual data in planning for improvement, and identify strategies that target areas and groups in need of additional support and improvement.
- that **school boards and schools,** in partnership with parents and school councils, incorporate the data collected and released as part of the Education Quality Indicators Program (EQUIP) into their reports, improvement plans and local profiles, in order to give parents and the public greater insight into the wide range of factors that contribute to achievement.

- that **principals,** with support from boards and the Ministry of Education, provide opportunities for all teachers to be involved in shared, collegial approaches both to the analysis of student achievement information and to the development and implementation of improvement strategies across all grades.

- that **principals,** with support from boards and the Ministry of Education, provide teachers with opportunities for professional development in assessment literacy and, in particular, in using assessment data along with best practices to develop strategies for improvement.

- that **principals and teachers,** with support from their school boards and in consultation with parents and school councils, analyze the data presented in this report and, through their school improvement plans, act on the subject-specific recommendations outlined below, in order to sustain improvement.

## Reading

### EQAO recommends

- that **teachers** use a variety of reading materials across genres and employ teaching strategies to motivate and interest both girls and boys in reading.

- that **teachers** have students focus on

    - understanding the different organizational and presentation forms (of non-fiction, for example) or understanding graphic organizers and how they connect information in boxes and sidebars to the information in the text.

    - identifying and differentiating characteristics of different forms of written material (for example, stories and poems).

- that **teachers** continue to read aloud to students throughout the elementary grades and emphasize to parents the importance of reading aloud to their children at home.

### Suggestions from Teachers for Teachers

*Grade 3 Reading: Reasoning*

Teachers should work with students as they begin to make inferences.

The following are suggestions for teachers to help build this skill among their students:

- Draw attention to contextual clues in texts.

- Provide opportunities for students to justify their choices and explain their thinking when responding to questions.

Example: Levels 1 4 of It's a Frog's Life, question #1, show the progression of student ability to make inferences in order to explain why spring is one of the busiest seasons for the frog, across the four levels of achievement (Level 1 and Level 2 anchors; Level 3 and Level 4 anchors).

*Grade 3 Reading: Organization of Ideas*

Teachers should work with students on the skill of identifying the organizational elements of different texts and providing explanations of these elements.

The following are suggestions for teachers to help students build this skill:

- Share different genres of text with students.
- Discuss with students the organizational characteristics of the different genres of text.
- Ask students to explain in their own words the author's purpose in writing the text in the format he or she has chosen.

Example: Levels 1 4 of Reaching for the Sky, question #1, show the progression of students' understanding of how In a Nutshell is like a story and How to Grow a Tree is like an article, across the four levels of achievement (Level 1 and Level 2 anchors; Level 3 and Level 4 anchors).

*Grade 6 Reading: Reasoning and Communication*

Teachers should work with students on responding to prompts in their own words.

The following are suggestions for teachers to help students build this skill:

- Model the rephrasing of text in the students' own words instead of words copied from the text.
- Provide opportunities for students to incorporate supporting detail from the text in their own words, in their responses to questions.

Example: Levels 1 4 of Meet the Group of Seven, question #3, show the progression of students' ability to use their own words rather than copying directly from the text in responding to the question (Level 1 and Level 2 anchors; Level 3 and Level 4 anchors).

*Grade 6 Reading: Language Conventions*

Teachers should work with students on identifying punctuation and explaining how the punctuation helps them understand what they read.

The following are suggestions for teachers to help students build this skill:

- Have the students examine text with the punctuation removed, then share the text as written by the author. Have the students explain in their own words how the punctuation helps them better understand the text.

Example: Levels 1 4 of Meet the Group of Seven, question #7 show the progression of students' ability to explain how the comma and apostrophe function in the sentences (Level 1 and Level 2 anchors; Level 3 and Level 4 anchors).

## Writing

### EQAO recommends

- that **teachers** use a variety of strategies to interest both boys and girls in writing and to motivate them.
- that **teachers** help boys develop planning and organization strategies to allow them to write better.

### Suggestions from Teachers for Teachers

*Grade 3 Writing: Reasoning*

Teachers should work with students on writing for different purposes and different audiences.

The following are suggestions for teachers to help their students build this skill:

- Read different genres of text to the students. Share chapter books, stories, narratives, letters, poems, journal entries, etc., on a regular basis. Keep track of the types of writing shared.
- Provide opportunities for students to create pieces of writing in different genres and for a variety of purposes.

*Grade 3 Writing: Organization of Ideas*

Teachers should work with students on showing evidence of a logical plan and/or focus.

The following are suggestions for teachers to help their students build this skill:

- Encourage students to use story planners.
- Model the use of story planners (one example is included in the Student Writing Booklet) to help students organize ideas and information using appropriate, logical connections.

*Grade 6 Writing: Reasoning*

Teachers should work with students on writing for different purposes and different audiences.

The following are suggestions for teachers to help their students build this skill:

- Read different genres of text to the students. Share narratives, editorials, letters, journal entries, poetry, etc., on a regular basis. Keep track of the types of writing shared.
- As you read different genres of writing, ask students to identify the genre and explain its characteristics. Build charts that describe the characteristics of different genres. Challenge students to create different pieces of writing using the characteristics charts as a guide. Make the writing authentic by connecting the writing to cross-curricular units being explored in the classroom.

*Grade 6 Writing: Organization of Ideas*

Teachers should work with students on using a logical sequence among sentences, paragraphs and in overall organization and structure.

The following are suggestions for teachers to help their students build this skill:

- Provide opportunities for students to use a story planner.
- Model the use of story planners (one example is included in the Student Writing Booklet) to help students sequence ideas and organize their writing into paragraphs.

## Mathematics

### EQAO recommends

- that **teachers** provide opportunities for students to write in all the content areas, including mathematics, to improve communication skills.
- that **teachers** help students to see the real world application of mathematical concepts.
- that **teachers** encourage girls to pursue the study of mathematics throughout their schooling.
- that **teachers** focus on problem solving by having students
  - identify the information necessary to solve the problem and
  - explain in detail the strategy they have used to solve the problem.

### Suggestions from Teachers for Teachers

*Grade 3 Mathematics (English and French Immersion): Communication*

Teachers should work with students, on a regular basis, on oral and written communication that uses appropriate mathematical terminology.

The following are suggestions for teachers to help their students build this skill:

- Create a mathematics word wall in the classroom, to which new mathematical concepts and vocabulary can be added.
- Use mathematics journals in which students can be encouraged to explain their thinking processes, using numbers, pictures and/or words.
- Provide opportunities for students to describe their thinking processes and procedures when using a calculator and/or mathematics manipulatives.

Example: Levels 1 4 Investigation 1, question #4, show the progression of student ability to use precise mathematical terminology in explaining the measurement terms involved in understanding capacity (English: Level 1 and Level 2 anchors; Level 3 and Level 4 anchors) (French Immersion: Level 1 and Level 2 anchors; Level 3 and Level 4 anchors).

*Grade 3 Mathematics (English and French Immersion): Problem Solving*

Teachers should use a variety of open-ended problem-solving questions as a regular part of the mathematics program.

The following are further related suggestions:

- Provide opportunities for students to construct their solutions using prior mathematical knowledge and experience.
- Brainstorm and discuss strategies used to solve problems.
- Model different problem-solving strategies for students.
- Teach the steps of the problem-solving inquiry process found on page 74 of *The Ontario Curriculum, Grades 1–8: Mathematics*.
- Provide opportunities for students to find innovative ways of solving problems. It is important that students understand that there are several ways to approach and solve a problem.

Example: Levels 1 4 of Investigation 3, question #4, a data management and probability question, show the progression of student ability to solve problems, including the choice of strategies used to solve the problem, across the levels of achievement (Level 1 and Level 2 anchors; Level 3 and Level 4 anchors) (French Immersion: Level 1 and Level 2 anchors; Level 3 and Level 4 anchors).

*Grade 6 Mathematics: Communication*

Teachers should provide opportunities for students to communicate their skills and knowledge, incorporating mathematical terms and symbols.

- Model exemplary responses using numbers, pictures and/or words to communicate knowledge related to concepts, procedures and problem solving.

Example: Levels 1 4 of Investigation 2, question #3, a measurement question, show the progression of student ability to present a clear explanation of the relationship between the areas of a triangle and a rectangle, using mathematical terminology and symbols across levels of achievement (Level 1 and Level 2 anchors; Level 3 and Level 4 anchors).

*Grade 6 Mathematics: Understanding of Concepts*

Teachers should work with students on providing detailed explanations of concepts and mathematical ideas and relationships.

- Provide opportunities for students to explain their thinking related to a mathematical idea or relationship, through the use of math journals, problem of the week activities or math nights.

Example: Levels 1 4 of Investigation 1, question #5, a geometry and spatial sense question, show the progression of student ability to demonstrate an understanding of the concept of transformations and to provide explanations that incorporate mathematical ideas and relationships outlined in *The Ontario Curriculum* (Level 1 and Level 2 anchors; Level 3 and Level 4 anchors).

| It's a Frog's Life | |
|---|---|
| **FL-1 Reasoning** | **Level 1** |
| Why is spring one of the busiest seasons for the frog?<br>It's importenmt because they get to sleep all winter loog | |
| demonstrates very limited understanding of the activities in frog's life during spring by using a few simple ideas, responding with information inconsistently related to the text | |

| It's a Frog's Life | |
|---|---|
| **FL-1 Reasoning** | **Level 2** |
| Why is spring one of the busiest seasons for the frog?<br>Spring is one of the busiest seasons of all because frogs lay ther eggs | |
| demonstrates limited understanding of the activities in frog's life during spring by using some simple ideas, responding with some information that is related to the text | |

| **It's a Frog's Life** | |
|---|---|
| **FL-1 Reasoning** | **Level 3** |

Why is spring one of the busiest seasons for the frog?

Spring is the busiest season for a frog because he has to get to the pond without getting killed and it's time for him to start eating again

demonstrates general understanding of the activities in frog's life during spring by using ideas of some complexity, beginning to make inferences and responding with information that is consistently related to the text

| **It's a Frog's Life** | |
|---|---|
| **FL-1 Reasoning** | **Level 4** |

Why is spring one of the busiest seasons for the frog?

Spring is very busy for the frog because he needs to find food after hibernating. Frogs need to get to their natral homes. It takes a long time! (it took frog 2 days!) The baby tadpoles are hatching. They need to be carful because heron's, birds and newts love to eat them.

demonstrates thorough understanding of the activities in frog's life during spring by using ideas, making inferences and responding with information that is consistently related to the text

**Reaching for the Sky**

**RS-1 Organization** | **Level 1**

"In a Nutshell" is like a story and "How to Grow a Tree" is like an article.

a) **"In a Nutshell" — How is it like a story?**

Yes I Think it is like a story because it trns into a tree.

b) **"How to Grow a Tree" — How is it like an article?**

It tell you how to Grow a tree.

demonstrates limited understanding of stories and articles as text forms by identifying a few simple characteristics and organizational elements

**Reaching for the Sky**

**RS-1 Organization** | **Level 2**

"In a Nutshell" is like a story and "How to Grow a Tree" is like an article.

a) **"In a Nutshell" — How is it like a story?**

because it tells you how it grows up to be a huge oak tree

b) **"How to Grow a Tree" — How is it like an article?**

It give you instructions how to grow yourvery own oak tree.

demonstrates some understanding of stories and articles as text forms by identifying simple characteristics and organizational elements

| **Reaching for the Sky** | | **Reaching for the Sky** | |
|---|---|---|---|
| **RS-1 Organization** | **Level 3** | **RS-1 Organization** | **Level 4** |

"In a Nutshell" is like a story and "How to Grow a Tree" is like an article

a) **"In a Nutshell" -- How is it like a story?**

"In a Nutshell" is like a story because it has many butterfly pictures and it show whats going on. Also it has paragraphs and a beginning, middle, end

b) **"How to Grow a Tree" -- How is it like an article?**

"How to Grow a Tree" is like a article because it has experements, steps and pictures to show you what going on if you can't read

demonstrates general understanding of stories and articles as text forms by identifying characteristics and organizational elements of some complexity

"In a Nutshell" is like a story and "How to Grow a Tree" is like an article.

a) **"In a Nutshell" — How is it like a story?**

Well it has a problem, solution and setting "In a Nutshell" it has a beginning (Dave sprinkled on the great forest), a middle (The tree gave a home to all) and end (until the life of a acorn became apart of every thing)

b) **"How to Grow a Tree" — How is it like an article?**

It tells you information, like how to start with a seed or seedling to grow a tree It tells you what words mean (glossary) and tells you how to take care of the plant that is a seed of seedling

demonstrates thorough understanding of stories and articles as text forms by identifying complex characteristics and organizational elements

| **Meet the Group of Seven** | |
|---|---|
| **GS-3 Reasoning** | **Level 1** |
| The Group of Seven faced many challenges during their years together as painters<br>Identify some of these challenges using information from the text to support your answer<br>The challenges they had to deal with was the weather down - don't like the country | |
| demonstrates very limited understanding of the challenges faced by the Group of Seven by citing very simple information that is inconsistently related to the text | |

| **Meet the Group of Seven** | |
|---|---|
| **GS-3 Reasoning** | **Level 2** |
| The Group of Seven faced many challenges during their years together as painters<br>Identify some of these challenges using information from the text to support your answer<br>there were Mosquitos in the oil paint, and some times it would Rain so they couldn't paint | |
| demonstrates limited understanding of the challenges faced by the Group of Seven by citing some simple information that is consistently related to the text | |

| **Meet the Group of Seven** | | **Meet the Group of Seven** | |
|---|---|---|---|
| **GS-3 Reasoning** | **Level 3** | **GS-3 Reasoning** | **Level 4** |
| The Group of Seven faced many challenges during their years together as painters<br>Identify some of these challenges using information from the text to support your answer<br>Some challenges would of been:<br>① How would they get to all the sciences? They had a boxcar moved along the railroad so they could paint deep and every day.<br>② Another one is: At first people were not to fond of their paintings. It took years to become recognized. | | The Group of Seven faced many challenges during their years together as painters<br>Identify some of these challenges using information from the text to support your answer<br>The Group of Seven had problems of getting around to their canvas. They didn't have cars back then. So they attached a boxcar to a train and traveled in that. Another challenge is that sometimes people didn't like their paintings. Like it was ugly or it just isn't realistic. They also had trouble of getting their group set up. Some left the group and some joined in. | |
| demonstrates general understanding of the challenges faced by the Group of Seven by citing information of some complexity that is consistently related to the text | | demonstrates thorough understanding of the challenges faced by the Group of Seven by citing complex information that is consistently related to the text | |

| **Meet the Group of Seven**<br>**GS-7 Conventions** | **Level 1** |
|---|---|
| Explain how each of the following forms of punctuation helps you understand what you have read.<br>**Comma**<br>...the Group held eight exhibitions at the Art Gallery of Toronto, now known as the Art Gallery of Ontario.<br>It makes a break for you and a sentence.<br>**Apostrophe**<br>Fall was the Group's favourite time to paint<br>Helps to tell you a letter is missing. | demonstrates very limited understanding of punctuation by identifying with limited accuracy the functions of the comma and the apostrophe and providing a limited explanation of how they help the reader understand the text |

| **Meet the Group of Seven**<br>**GS-7 Conventions** | **Level 2** |
|---|---|
| Explain how each of the following forms of punctuation helps you understand what you have read.<br>**Comma**<br>...the Group held eight exhibitions at the Art Gallery of Toronto, now known as the Art Gallery of Ontario.<br>It helps me understand because there is a pause in the sentence.<br>**Apostrophe**<br>Fall was the Group's favourite time to paint<br>It helps me because the apostrophe is telling something ali of the group likes. (belongs) | demonstrates limited understanding of punctuation by identifying with some accuracy the functions of the comma and the apostrophe and providing some explanation of how they help the reader understand the text |

**Meet the Group of Seven**

**GS-7 Conventions** | **Level 3**

Explain how each of the following forms of punctuation helps you understand what you have read.

**Comma**

...the Group held eight exhibitions at the Art Gallery of Toronto, now known as the Art Gallery of Ontario.

The comma means to show an interrupted idea.

**Apostrophe**

...It was the Group's favourite time to paint.

An apostrophe means to show belonging. The group had a favorite season.

demonstrates general understanding of punctuation by correctly identifying the functions of the comma and the apostrophe and explaining how they help the reader understand the text

**Meet the Group of Seven**

**GS-7 Conventions** | **Level 4**

Explain how each of the following forms of punctuation helps you understand what you have read.

**Comma**

...the Group held eight exhibitions at the Art Gallery of Toronto, now known as the Art Gallery of Ontario.

The comma helps me in this sentence because it tells me that there is more idea, and it seperates the two.

**Apostrophe**

...It was the Group's favourite time to paint.

This apostrophe helps me understand the sentence because it tells me that the word Groups is a possesit. Group's

demonstrates thorough understanding of punctuation by correctly identifying the functions of the comma and the apostrophe and precisely explaining how they help the reader understand the text

| **Investigation 1 #4** | |
|---|---|
| **Measurement**<br>**Communication** | **Level 1** |

Jack gets thirsty while planting the garden. He fills his cup with water.

Which unit is best for measuring how much water is in the cup?

- Circle your answer.

L  m  mg  mL  g

Explain how you know this is the best unit for measuring water in the cup.

Because grams is the smallest amount there are! the cup is smaller than all the rest.

provides an unclear and or imprecise explanation of the unit that is best for measuring water in the cup, incorporating inappropriate mathematical terms

| **Investigation 1 #4** | |
|---|---|
| **Measurement**<br>**Communication** | **Level 2** |

Jack gets thirsty while planting the garden. He fills his cup with water.

Which unit is best for measuring how much water is in the cup?

- Circle your answer.

L  m  mg  mL  g

Explain how you know this is the best unit for measuring water in the cup. I new because letter's is how you measure water or liked

provides a somewhat clear explanation of the unit that is best for measuring water in the cup, incorporating some appropriate mathematical terms and symbols

| **Investigation 1 #4** | | **Investigation 1 #4** | |
|---|---|---|---|
| **Measurement**<br>**Communication** | **Level 3** | **Measurement**<br>**Communication** | **Level 4** |

**Jack gets thirsty while planting the garden. He fills his cup with water**

**Which unit is best for measuring how much water is in the cup?**

- (Circle) your answer

L m mg (mL) g

**Explain how you know this is the best unit for measuring water in the cup**

mL is the best for measuring water because L would be to big so I used smaller L which are mL.

provides a generally clear explanation of the unit that is best for measuring water in the cup, incorporating appropriate mathematical terms and symbols

**Jack gets thirsty while planting the garden. He fills his cup with water**

**Which unit is best for measuring how much water is in the cup?**

- (Circle) your answer

L m mg (mL) g

**Explain how you know this is the best unit for measuring water in the cup.**

I know because when you measuring small containers of water you use milleters. So if you measuer it by leters it to big and meters of for measuring distane and mg and g are for measuring weight.

provides a clear and precise explanation of the unit that is best for measuring water in the cup, incorporating a range of appropriate mathematical terms and symbols

| **Investigation n° 1** | **Question 4** |
|---|---|
| **Mesure**<br>**Communication** | **Niveau 1** |

Jack a soif pendant qu'il plante les graines. Il remplit sa tasse d'eau.

Quelle unité est la meilleure pour mesurer la quantité d'eau dans la tasse?

- Encercle ta réponse.

L m mg mL g

Explique comment tu sais que c'est la meilleure unité pour mesurer l'eau dans la tasse.

Car le tasse est moyen et tu mesure les chose moyen avec des g.

donne une explication peu claire et/ou imprécise de la meilleure unité pour mesurer l'eau dans la tasse, en utilisant rarement la terminologie mathématique

| **Investigation n° 1** | **Question 4** |
|---|---|
| **Mesure**<br>**Communication** | **Niveau 2** |

Jack a soif pendant qu'il plante les graines. Il remplit sa tasse d'eau.

Quelle unité est la meilleure pour mesurer la quantité d'eau dans la tasse?

- Encercle ta réponse.

L m mg mL g

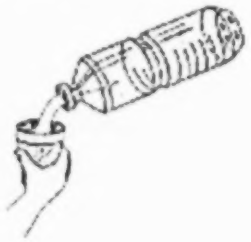
Explique comment tu sais que c'est la meilleure unité pour mesurer l'eau dans la tasse.

parce que quand tu mesure l'eau tu mesure avec les L.

donne une explication plus ou moins claire et précise de la meilleure unité pour mesurer l'eau dans la tasse, en utilisant parfois la terminologie et les symboles mathématiques appropriés

| **Investigation n° 1** | **Question 4** |
|---|---|
| **Mesure**<br>**Communication** | **Niveau 3** |

Jack a soif pendant qu'il plante les graines. Il remplit sa tasse d'eau.



Quelle unité est la meilleure pour mesurer la quantité d'eau dans la tasse

- (Encercle) ta réponse.

L  m  mg  (mL)  g

Explique comment tu sais que c'est la meilleure unité pour mesurer l'eau dans la tasse.

Je sais parce que le ml mesure d'eau et le ml est petit. Le L est trop grande pour mesurer un tasse d'eau

donne une explication généralement claire et précise de la meilleure unité pour mesurer l'eau dans la tasse, en utilisant la terminologie et les symboles mathématiques appropriés

| **Investigation n° 1** | **Question 4** |
|---|---|
| **Mesure**<br>**Communication** | **Niveau 4** |

Jack a soif pendant qu'il plante les graines. Il remplit sa tasse d'eau

Quelle unité est la meilleure pour mesurer la quantité d'eau dans la tasse?

- (Encercle) ta réponse.

L  m  mg  (mL)  g

Explique comment tu sais que c'est la meilleure unité pour mesurer l'eau dans la tasse.

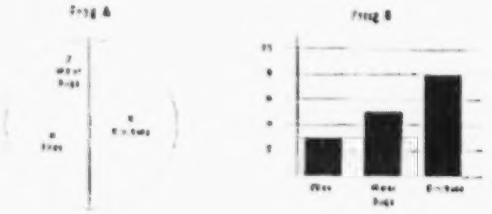
Parce que tu ne mesure jamais les liquide en m et si ne demande pas pour la masse alors sa me laisse avec L et mL. Le tasse est petit alors je choisis les mL parce que c'est plus petit que les L

donne une explication claire et précise de la meilleure unité pour mesurer l'eau dans la tasse, en utilisant une gamme de terminologie et de symboles mathématiques appropriés

| **Investigation 3 #4**<br>**Data Management and Probability**<br>**Problem Solving** | **Level 1** |
|---|---|

Frogs eat insects each day.

The graphs below show the number of insects eaten by Frog A and Frog B in 1 day.




Look at the circle graph and the bar graph.

- If the frogs ate the same food every day for 1 week, would more flies or more water bugs be eaten by the rest of the week?

Explain your thinking.

I think water bugs because it has more than flies

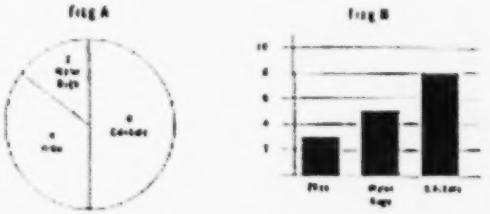
More water bugs would be eaten by the end of the week

demonstrates a very limited understanding of the data on the graphs by choosing and carrying out a simple or inappropriate strategy to read the graphs and determine the insects eaten by the end of the week, leading to an inaccurate solution.

| **Investigation 3 #4**<br>**Data Management and Probability**<br>**Problem Solving** | **Level 2** |
|---|---|

Frogs eat insects each day.

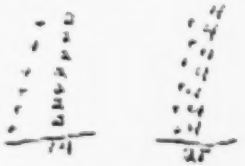
The graphs below show the number of insects eaten by Frog A and Frog B in 1 day.




Look at the circle graph and the bar graph.

- If the frogs ate the same food every day for 1 week, would more flies or more water bugs be eaten by the rest of the week?

Explain your thinking.



More flies would be eaten by the end of the week

demonstrates a limited understanding of the data on the graphs by choosing and carrying out a somewhat appropriate strategy to read the graphs and determine the insects eaten by the end of the week, leading to a partially accurate solution.

**Investigation 3 #4**
**Data Management and Probability**
**Problem Solving**

**Level 3**

Frogs eat insects each day.

The graphs below show the number of insects eaten by Frog A and Frog B in 1 day.

Look at the circle graph and the bar graph.

- If the frogs ate the same food every day for 1 week, would more flies or more water bugs be eaten by the end of the week?

Explain your thinking.

They would be the same because 3+4=7 and 5+2=7

7 water bugs and 7 flies would be eaten by the end of the week.

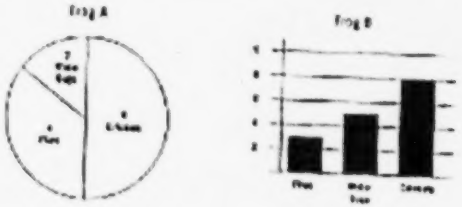
demonstrates a general understanding of the data on the graphs by choosing and carrying out an appropriate strategy to read the graphs and determine the insects eaten by the end of the week, leading to a generally accurate solution

**Investigation 3 #4**
**Data Management and Probability**
**Problem Solving**

**Level 4**

Frogs eat insects each day.

The graphs below show the number of insects eaten by Frog A and Frog B in 1 day.




Look at the circle graph and the bar graph.

- If the frogs ate the same food every day for 1 week, would more flies or more water bugs be eaten by the end of the week?

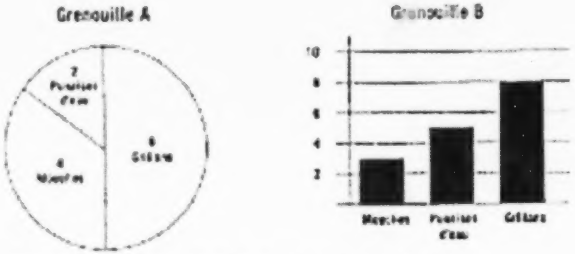
Explain your thinking. The water bugs and flies both are eaten the same amount because 49 flies are eaten and 49 water bugs are eaten. 4 flies 3 flies
4 × 7 = 28 3 × 7 = 21
28 + 21 = 49
2 water bugs 5 water bugs
2 × 7 = 14 5 × 7 = 35
14 + 35 = 49
Flies, Water bugs would be eaten by the end of the week

demonstrates an in-depth understanding of the data on the graphs by choosing and carrying out the most appropriate strategy to read the graphs and determine the insects eaten by the end of the week, leading to an accurate solution

| **Investigation n° 3** | **Question 4** |
|---|---|
| **Traitement des données et probabilité**<br>**Résolution de problèmes** | **Niveau 1** |

4. Les grenouilles mangent des insectes chaque jour.

Les diagrammes ci-dessous montrent le nombre d'insectes mangés par la grenouille A et la grenouille B dans 1 journée.




Observe le diagramme circulaire et le diagramme à bandes.

- Si les grenouilles mangent la même nourriture chaque jour pendant 1 semaine, est-ce qu'il y aura plus de **mouches** ou plus de **punaises d'eau** mangées à la fin de la semaine?

Explique ta réponse.

Il y a plus de grillons pour les grenouill et il va avoir beaucoup de grillons pour la semine.

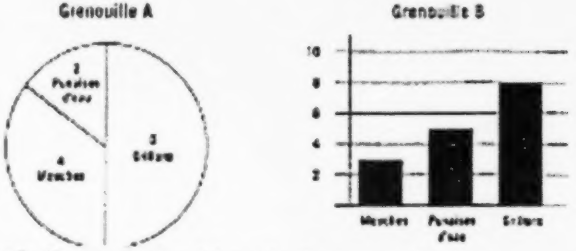
10 seront mangées à la fin de la semaine

démontre une compréhension très limitée des données sur les diagrammes en choisissant et en utilisant une stratégie inappropriée ou simple qui mène à une solution imprécise, pour lire les diagrammes et déterminer les insectes mangés à la fin de la semaine

| **Investigation n° 3** | **Question 4** |
|---|---|
| **Traitement des données et probabilité**<br>**Résolution de problèmes** | **Niveau 2** |

4. Les grenouilles mangent des insectes chaque jour.

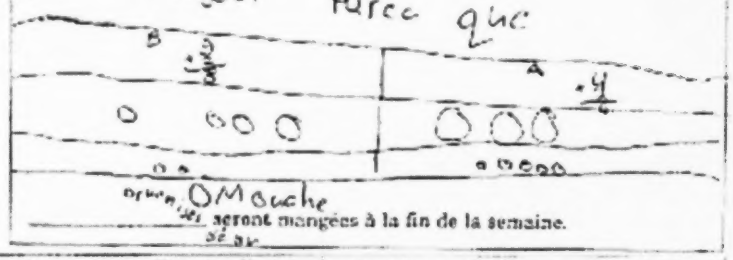
Les diagrammes ci-dessous montrent le nombre d'insectes mangés par la grenouille A et la grenouille B dans 1 journée.




Observe le diagramme circulaire et le diagramme à bandes.

- Si les grenouilles mangent la même nourriture chaque jour pendant 1 semaine, est-ce qu'il y aura plus de **mouches** ou plus de **punaises d'eau** mangées à la fin de la semaine?

Explique ta réponse. Grenouille B va avoir plus d'insect parce que



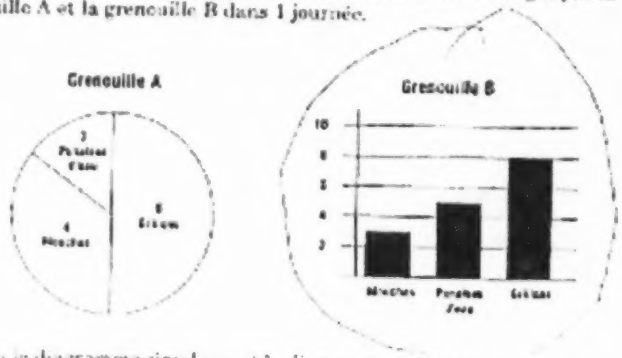

seront mangées à la fin de la semaine.

démontre une compréhension limitée des données sur les diagrammes en choisissant et en utilisant une stratégie plus ou moins appropriée qui mène à une solution partiellement précise, pour lire les diagrammes et déterminer les insectes mangés à la fin de la semaine

| **Investigation n° 3** | **Question 4** |
|---|---|
| **Traitement des données et probabilité**<br>**Résolution de problèmes** | **Niveau 3** |

4. Les grenouilles mangent des insectes chaque jour.

Les diagrammes ci-dessous montrent le nombre d'insectes mangés par la grenouille A et la grenouille B dans 1 journée.




Observe le diagramme circulaire et le diagramme à bandes.

- Si les grenouilles mangent la même nourriture chaque jour pendant 1 semaine, est-ce qu'il y aura plus de **mouches** ou plus de **punaises d'eau** mangées à la fin de la semaine?

Explique ta réponse.

Il est
le même

Mouches
4
+3
7

Punaises d'eau
5
+2
7

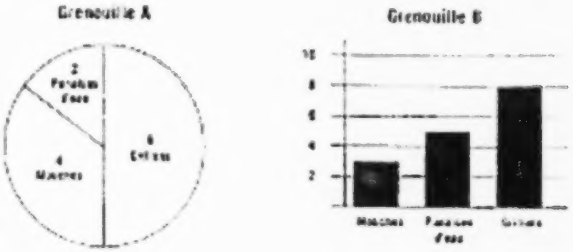
Les deux seront mangées à la fin de la semaine.

démontre une compréhension générale des données sur les diagrammes en choisissant et en utilisant une stratégie appropriée qui mène à une solution généralement précise, pour lire les diagrammes et déterminer les insectes mangés à la fin de la semaine

| **Investigation n° 3** | **Question 4** |
|---|---|
| **Traitement des données et probabilité**<br>**Résolution de problèmes** | **Niveau 4** |

4. Les grenouilles mangent des insectes chaque jour.

Les diagrammes ci-dessous montrent le nombre d'insectes mangés par la grenouille A et la grenouille B dans 1 journée.




Observe le diagramme circulaire et le diagramme à bandes.

- Si les grenouilles mangent la même nourriture chaque jour pendant 1 semaine, est-ce qu'il y aura plus de **mouches** ou plus de **punaises d'eau** mangées à la fin de la semaine?

Explique ta réponse. Ça va être égale parce que

j'ai calculé avec

5 + 2 = 7 x 7 = 49

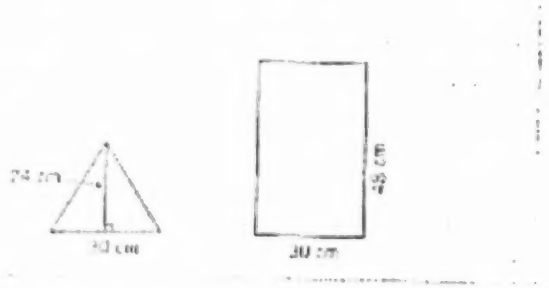
4 + 3 = 7 x 7 = 49

_____ seront mangées à la fin de la semaine

démontre une compréhension complète des données sur les diagrammes en choisissant et en utilisant la stratégie la plus appropriée qui mène à une solution précise, pour lire les diagrammes et déterminer les insectes mangés à la fin de la semaine

| **Investigation 2 #3** | |
|---|---|
| **Measurement**<br>**Communication** | **Level 1** |

3. There are road signs along the bike route.
Two of the signs look like this:




• Describe the relationship between the two signs.

Think about length of sides, perimeter and area

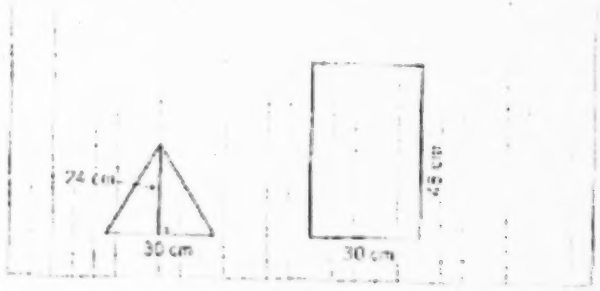
Explain your thinking.

They both have multipals of 5.
They are both a shape.

provides a unclear and/or imprecise explanation of the relationship between the triangle and the rectangle, using few mathematical terms and symbols

| **Investigation 2 #3** | |
|---|---|
| **Measurement**<br>**Communication** | **Level 2** |

3 There are road signs along the bike route
Two of the signs look like this:




• Describe the relationship between the two signs.

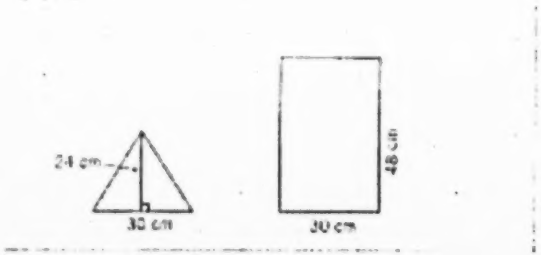
Think about length of sides, perimeter and area

Explain your thinking. I think the relationship is that the bottoms of both signs are both 30 cm and the rectangles lenght is double the size for different meanings and is 90° angle 3D degree

provides a partially clear and precise explanation of the relationship between the triangle and the rectangle, using some appropriate mathematical terms and symbols

| **Investigation 2 #3** | |
|---|---|
| **Measurement**<br>**Communication** | **Level 3** |

3. There are road signs along the bike route
Two of the signs look like this:




Think about length of sides, perimeter and area

- Describe the relationship between the two signs

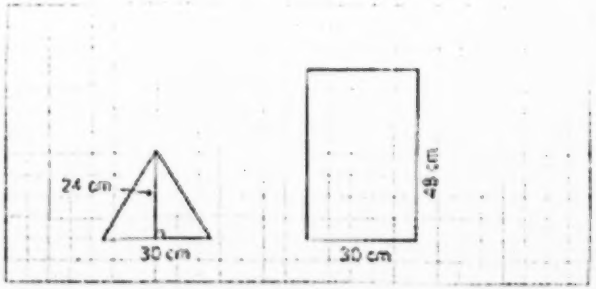
Explain your thinking

- the base of the triangle is the same as the base of the rectangle
- triangle's area is 3600 cm²
- rectangle's area is 1440 cm²
- the triangle's total area is ¼ of the rectangle's

provides a generally clear and precise explanation of the relationship between the triangle and the rectangle,, using appropriate mathematical terms and symbols

| **Investigation 2 #3** | |
|---|---|
| **Measurement**<br>**Communication** | **Level 4** |

3. There are road signs along the bike route
Two of the signs look like this:




Think about length of sides, perimeter and area

- Describe the relationship between the two signs.

Explain your thinking

P: 5 x 3
= 30cm x 3
= 90cm

P: L+W x 2
= 30cm + 48cm x 2
= 156cm

A: b x h ÷ 2
= 30cm x 24cm ÷ 2
= 360cm² A: b x w
= 30cm x 48cm
= 1440cm²

- the base of the triangle is the same as the rectangle's base
- the rectangle height is double the triangle's height
- rectangle's area is 4 times the triangle's area

provides a clear and precise explanation of the relationship between the triangle and the rectangle, using a range of appropriate mathematical terms and symbols

**Investigation 1 #5**

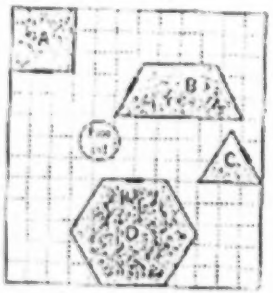
**Geometry and Spatial Sense**
**Understanding Concepts**

**Level 1**

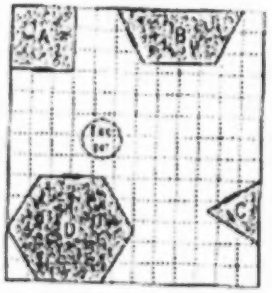
5. *Grid 1 shows how the tents are first set up at the campsite.*

*Grid 2 shows how the tents are moved to even ground.*

**Grid 1 (Before)**




**Grid 2 (After)**




- Explain how the tents are moved from Grid 1 to Grid 2.

Be sure to include the type of transformation, the number of units, the direction.

Tent B:

They moved up.

Tent C

they moved it down

Tent D

they moved it right

demonstrates a very limited understanding of the concepts of transformational geometry by providing partial explanations of the transformations of the tents at the campsite, incorporating few mathematical ideas and relationships.

**Investigation 1 #5**

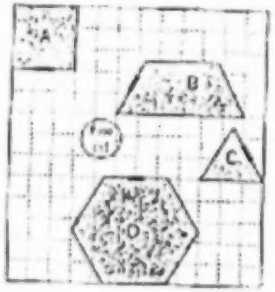
**Geometry and Spatial Sense**
**Understanding Concepts**

**Level 1**

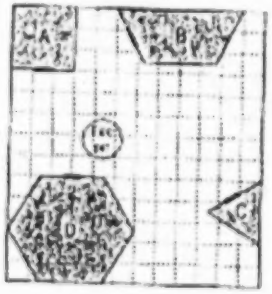
5. Grid 1 shows how the tents are first set up at the campsite.

Grid 2 shows how the tents are moved to even ground.

**Grid 1 (Before)**




**Grid 2 (After)**




Be sure to include the type of transformation, the number of units, the direction

a. Explain how the tents are moved from Grid 1 to Grid 2.

Tent B:

They moved up.

Tent C:

they moved it down

Tent D:

they moved it right

demonstrates a very limited understanding of the concepts of transformational geometry by providing partial explanations of the transformations of the tents at the campsite, incorporating few mathematical ideas and relationships

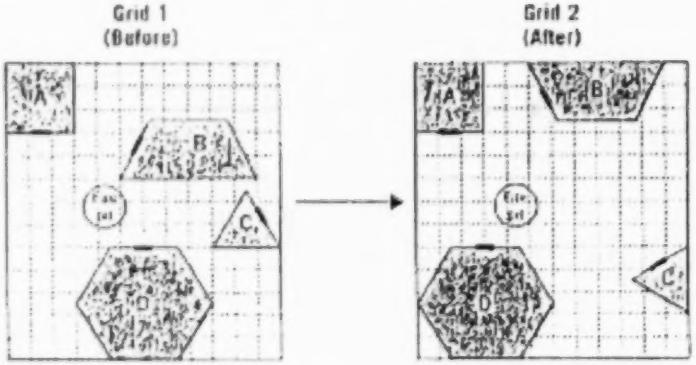
**Investigation 1 #5**

**Geometry and Spatial Sense**
**Understanding Concepts**

**Level 2**

5 Grid 1 shows how the tents are first set up at the campsite.

Grid 2 shows how the tents are moved to even ground.




• Explain how the tents are moved from Grid 1 to Grid 2.

Be sure to include the type of transformation, the number of units, the direction.

Tent B

✓Ged 's moved by a glip

Tent C

✓

Ged moved by a turn

Tent D

Ged moved by a flip

demonstrates a limited understanding of the concepts of transformational geometry by providing appropriate but incomplete explanations of the transformations of the tents at the campsite, incorporating some mathematical ideas and relationships

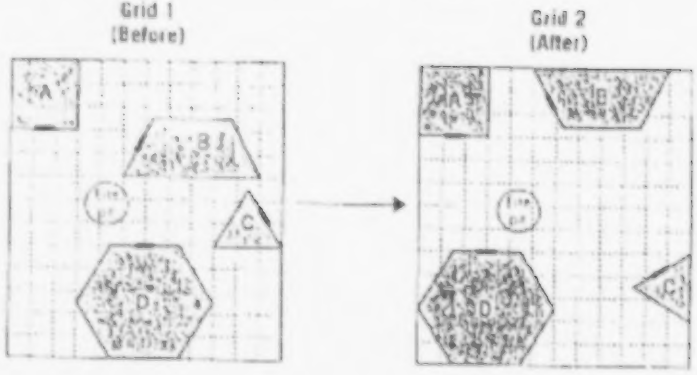
**Investigation 1 #5**

**Geometry and Spatial Sense**
**Understanding Concepts**

**Level 3**

5. Grid 1 shows how the tents are first set up at the campsite.

Grid 2 shows how the tents are moved to even ground.




• Explain how the tents are moved from Grid 1 to Grid 2.

Be sure to include the type of transformation, the number of units, the direction, etc.

Tent B:

Ant B is flipped (reflected) upwards.

Tent C:

Ant C is rotated to the left.

Tent D:

Ant D is slid to the left 3 units.

demonstrates a general understanding of the concepts of transformational geometry by providing appropriate explanations of the transformations of the tents at the campsite, incorporating mathematical ideas and relationships.

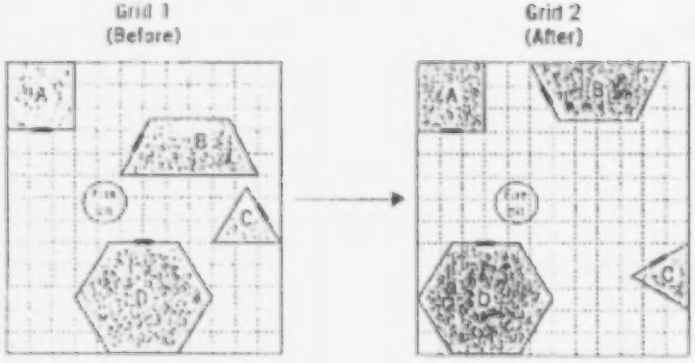
**Investigation 1 #5**

**Geometry and Spatial Sense**
**Understanding Concepts**

**Level 4**

5 Grid 1 shows how the tents are first set up at the campsite.

Grid 2 shows how the tents are moved to even ground.




- Explain how the tents are moved from Grid 1 to Grid 2.

Be sure to include
- the type of transformation
- the number of units
- the direction

Tent B

Tent B was reflected up.

Tent C

Tent C was rotated $\frac{1}{4}$ counterclockwise.

Tent D

Tent D was translated 3 units to the left

demonstrates an in-depth understanding of the concepts of transformational geometry by providing appropriate and complete explanations of the transformations of the tents at the campsite, incorporating a variety of mathematical ideas and relationships

Education
Quality and
Accountability
Office

# *The Grade 9 Assessment of Mathematics, 2001–2002*

## Report of Provincial Results

December 2002

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# *Results at a Glance*

## Overall Results and Data Comparisons with 2000–2001 (Method 1*) Applied

| | 2001–2002 (# = 47 220) | 2000–2001 (# = 41 708) |
|---|---|---|
| **Exempted** | 2% | 3% |
| **No Data** | 7% | 6% |
| **Insufficient Information to Score** | 6% | 15% |
| **Below Level 1** | 8% | 16% |
| **Level 1** | 19% | 24% |
| **Level 2** | 37% | 25% |
| **Level 3** | 21% | 13% |
| **Level 4** | <1% | <1% |

## Overall Results and Data Comparisons with 2000–2001 (Method 1*) Academic

| | 2001–2002 (# = 99 094) | 2000–2001 (# = 95 312) |
|---|---|---|
| **Exempted** | <1% | 1% |
| **No Data** | 1% | 1% |
| **Insufficient Information to Score** | 3% | 3% |
| **Below Level 1** | <1% | 6% |
| **Level 1** | 14% | 14% |
| **Level 2** | 17% | 26% |
| **Level 3** | 58% | 44% |
| **Level 4** | 5% | 5% |

* See page 6 for a description of Method 1.

## Key Messages

- The results of the Grade 9 Assessment of Mathematics, 2001–2002 are very encouraging. There has been a marked improvement in achievement results from 2000–2001 in both the applied and academic programs; more students achieved the provincial standard in 2001–2002.

- Teachers have been making mathematics a high priority, and their efforts and growing experience with the mathematics curriculum and assessment are showing positive results in student achievement.

- The Grade 9 mathematics results should be used to improve teaching and learning, not to rank schools. Ranking provides no information about why scores are high or low, and it invites simplistic and misleading comparisons that ignore the particular circumstances affecting achievement in each school. Ranking distracts people from addressing the more critical issue of how to improve learning for all students.

## Key Recommendations

- That **school boards,** in consultation with their communities, incorporate the overall, category and strand data from the Grade 9 Assessment of Mathematics, 2001–2002 into their current board improvement plans and develop further strategies for improving student achievement in mathematics.

- That **school boards, principals and teachers** examine achievement results from the 2000–2001 and 2001–2002 assessments to determine where improvement has occurred and which improvement strategies have had the greatest impact.

- That **school boards** analyze disaggregated as well as aggregated achievement and contextual data in planning for improvement and identify strategies that target areas and groups in need of additional support, motivation and improvement, especially those students not yet achieving the provincial standard.

- That the **Ministry of Education, faculties of education,** the **Ontario College of Teachers** (through Professional Learning Program providers), **mathematics associations** and **school boards** continue to support new and experienced teachers and provide them with professional development opportunities related to teaching and assessing mathematics.

# *The Grade 9 Assessment of Mathematics, 2001–2002*

## Introduction

The purpose of the Education Quality and Accountability Office (EQAO) is to promote greater accountability in the publicly funded education system in Ontario and to improve the quality of education in the province. In order to fulfill its mandate, EQAO conducts several province-wide assessments, among them the Grade 9 Assessment of Mathematics.

The Grade 9 Assessment of Mathematics measures how well students have met the expectations in *The Ontario Curriculum, Grades 9 and 10: Mathematics.* The assessment is based on the expectations of the Grade 9 curriculum for applied and academic mathematics courses.

Students in locally developed courses do not take part in this assessment. Locally developed courses are developed within school boards to meet educational needs that are not met by courses outlined in the provincial curriculum policy documents.

The results of these assessments provide individual, school and school board data on student achievement. Parents receive an Individual Student Report that provides information on their child's achievement on the assessment. Schools and boards create their own reports, based on EQAO data, for distribution to parents and other stakeholders in the community. EQAO posts board and school results on its Web site for access by the general public.

## Applied and Academic Courses

In Grades 9 and 10, students choose between two types of courses: applied and academic. EQAO develops separate versions of the assessment for students in applied and academic courses. Since some of the expectations for applied and academic courses overlap, approximately 40% of the assessment items are common to both the applied and academic versions.

## Semestered and Full-Year Schools

Schools have the option of offering semestered courses or courses over the full year. EQAO develops separate versions for administration in January and May/June.

## Development of the Assessment

The assessment was developed to serve the following purposes:

- to provide valid and reliable information about student achievement;
- to provide a broad window on students' knowledge and skills in mathematics and
- to contribute to student learning.

Teams of classroom teachers from across the province developed items for the assessment and, as part of the development process, tried out items in their classes.

Items for future assessments were piloted and field tested during the January and May/June administrations. At various stages, teachers provide feedback on the assessment items. EQAO used such feedback to revise and finalize the assessment materials for the administrations in January and May/June 2002.

The assessment was validated by educators with expertise in mathematics, in-depth knowledge of the mathematics expectations for Grade 9 (as outlined in *The Ontario Curriculum, Grades 9-10: Mathematics*), experience with equity issues, knowledge of the special needs of some students and technical expertise in the areas of assessment validity and reliability.

## Content of the Assessment

The assessment included a multiple-choice component, a short-answer component and performance-based tasks.

### Multiple-Choice Component

Students were asked to complete 24 questions during a 30-minute period. Each multiple-choice question was related to a single strand and a single category. (See the strand and category definitions in Appendix A.) The multiple-choice component allowed students to demonstrate their understanding of mathematical concepts without having to show their work or write responses.

### Short-Answer Component

Students were asked to complete 10 items during a 30-minute period. Each short-answer item was related to a single strand and a single category. These items required students to think mathematically but required minimal written response.

### Performance-Based Tasks

Students were asked to complete a total of six tasks. Each task was a collection of related questions based on one or two strands from the curriculum. Each task was scored for achievement across all four categories and the strands related to the task.

### Additional Component

Students completed an additional 30-minute component that was scored but did not count toward their results. This component included items that were used to establish comparability between the assessments administered in January and May/June and between the 2000–2001 and 2001–2002 assessments. It also included items that were being pilot-tested or field-tested for future use.

## Participation in the Assessment

All Grade 9 students who are enrolled in an applied or academic mathematics course are expected to participate in this annual assessment. An accommodation policy is in place to support students

with special needs and students who require special provisions due to a lack of proficiency in English.

Principals and teachers are responsible for accommodating students with special needs identified in an Individual Education Plan so that these students can take part in the assessment. The list of permitted accommodations appears on the CD-ROM used for training to administer; the list also appears on the Web site: www.eqao.com.

Principals and teachers are able to make special provisions for students enrolled in English as a Second Language (ESL)/English Literacy Development (ELD) programs. The list of permitted special provisions appears in the administration guide.

The principal may consider exempting any student who, despite the permitted accommodations and special provisions, would not be able to provide evidence of learning.

Decisions about accommodations, special provisions and exemptions must be made by the principal on an individual basis and in consultation with the student, his or her parents/guardians and appropriate staff. Parental consent is required for an exemption.

## Administration of the Assessment

The assessment was administered during the period January 9–22, 2002, to students in first-semester mathematics courses and from May 27–June 13, 2002, to students in second-semester and full-year courses.

Principals had the option of administering the assessment over three or five days.

## Marking the Assessment

Teachers trained in marking scored the short-answer and performance-based items, using a scoring scale that had three to six possible codes for each item. The multiple-choice items were machine-scored. The multiple-choice scores were combined with the short-answer and performance-based scores to produce category, strand and overall scores. With the aid of a statistical procedure that took into account the degree of difficulty of each test item and the input of the markers, the category, strand and overall scores were then mapped onto EQAO's reporting scale.

This scoring procedure results in precise scoring and allows for the comparability of the category, strand and overall results from administration to administration and from year to year.

## Reporting Results

Achievement results are reported in two ways — Method 1 and Method 2.

### Method 1

In Method 1, all data are reported. Method 1 expresses the number of students achieving each level as a percentage of all of the students in the course, including students who scored below

Level 1, those who produced insufficient information to score, those who produced no data and those who were exempted.

Method 1 is EQAO's primary method of reporting, because publicly funded schools are accountable for the achievement and progress of all students. Schools and school boards are required to use this method to ensure the consistency of reporting across the province.

## Method 2

Method 2 is an alternative way of presenting the data. Method 2 expresses student results as a percentage of those students who actually took part in the assessment and produced some work. Students who were exempted or for whom there were no performance data are excluded.

Method 2 highlights the results achieved by students with at least some scorable work.

## Achievement Levels

EQAO reports on student achievement in Grade 9 mathematics using a four-level scale. This four-level scale is aligned with the scale used in *The Ontario Curriculum, Grades 9 and 10: Mathematics* and the Provincial Report Card, Grades 9–12.

## Overall Achievement

The overall achievement level provides a general picture of students' achievement of the curriculum expectations in mathematics. The overall level reflects achievement across all of the categories and strands.

Due to rounding, percentages in the achievement tables may not total 100 exactly.

## Strand and Category Achievement

The strand and category achievement levels provide more detailed information about students' knowledge and skills in specific areas of the mathematics curriculum. The strands and categories are based on those in *The Ontario Curriculum*. The four strands provide information on students' strengths and weaknesses in the major content areas of mathematics (number sense and algebra, relationships, measurement and geometry, analytic geometry). The four categories (knowledge and understanding; thinking, inquiry and problem solving; application; communication) provide information on strengths and weaknesses in specific knowledge and skill areas that apply to all four strands.

## Provincial Standard

*The Ontario Curriculum* establishes Level 3 as the provincial standard. As stated in the curriculum, this is a high level of achievement, and students who are achieving this level or above can be confident that they are "well prepared for work in the next grade or the next course."

*The Ontario Curriculum* identifies Level 1 as a "passable level of achievement."

## Exempted or No Data

These designations include students who were formally exempted from participation in one or more components of the assessment and students from whom EQAO did not receive completed assessment booklets.

### Not Enough Information to Score (NEIS)

This designation represents student work that could not be scored, because large sections were missing or illegible.

### Below Level 1

Below Level 1 identifies insufficient achievement of the curriculum expectations.

### Level 1

Level 1 identifies a passable level of achievement. Achievement is below the provincial standard.

### Level 2

Level 2 identifies a moderate level of achievement. Achievement is below but approaching the provincial standard.

### Level 3

Level 3 identifies a high level of achievement. Achievement is at the provincial standard.

### Level 4

Level 4 identifies a very high to outstanding level of achievement. Achievement is above the provincial standard.

## Collection of Questionnaire Data

During both the January 2002 and the May/June 2002 administrations, teachers and students of both applied and academic courses were asked to complete detailed, anonymous questionnaires. Their responses were tabulated. Except in cases where a student's or teacher's privacy would be compromised, EQAO tabulates student questionnaire data for the province as a whole and by school and school board, and it tabulates teacher questionnaire data for the province as a whole and by school board. The provincial questionnaire data in this report, together with the wide range of contextual data that schools and school boards collect locally, should be referred to when interpreting the achievement results.

## Profile of Students Who Wrote the Assessment — Applied*

### Number of Students

| First Semester | Second Semester | Full Year | Total** |
|---|---|---|---|
| 20 956 | 14 632 | 4526 | 47 220 |

| Gender | Percentage |
|---|---|
| Male | 54% |
| Female | 44% |
| No Response | 2% |

| Place of Birth | Percentage |
|---|---|
| Inside Canada | 82% |
| Outside Canada | 17% |
| No Response | 1% |

| Year of Birth | Percentage |
|---|---|
| 1985 or Before | 7% |
| 1986 | 24% |
| 1987 | 68% |
| 1988 | <1% |
| No Response | <1% |

| Language(s) Spoken at Home | Percentage |
|---|---|
| Only English | 70% |
| Mostly English | 14% |
| English as Often as Another Language | 9% |
| Mostly Another Language | 4% |
| Only Another Language | 2% |
| No Response | 1% |

Observations

- Many students in the applied program appear to be one year older than their cohort.
- 17% of the students in the applied program were born outside Canada.
- 
- 

* "Applied courses focus on the essential concepts of a subject, and develop students' knowledge and skills through practical applications and concrete examples. Familiar situations are used to illustrate ideas, and students are given more opportunities to experience hands-on applications of the concepts and theories they study." *The Ontario Curriculum, Grades 9 to 12: Program Planning and Assessment, 2000*

** Some schools did not indicate whether students were enrolled in a semestered or full-year course. As a result, there are students included in the total who are not counted as part of the first-semester, second-semester or full-year statistics.

## Accommodations and Special Provisions — Applied

| | Percentage |
|---|---|
| **Students Who Received Accommodations and Special Provisions** | 2% |
| **Students Who Received Accommodations** | 16% |
| **Students Who Received Special Provisions** | 2% |
| **Students Who Received No Accommodations or Special Provisions** | 78% |
| **Students for Whom Information Is Missing** | <1% |

## Participation — Applied

| | Eligible Population | Percentage No Data | Percentage Exempted | Percentage Fully Participating |
|---|---|---|---|---|
| **All Applied Students** | 47 220 | 7% | 2% | 91% |
| **Gender** | | | | |
| **Female** | 20 786 | 6% | 2% | 92% |
| **Male** | 25 615 | 6% | 3% | 91% |
| **Student Status** | | | | |
| **ESL/ELD** | 2 094 | 3% | 23% | 74% |
| **Special Needs** | 8 869 | 5% | 5% | 90% |

**Observations**

- 44% of applied students were female, 54% were male and 2% were unspecified.
- 4% of applied students were identified as ESL/ELD.
- 19% of applied students were identified as special needs students.
- 7% of ESL/ELD students and 5% of special needs students were exempted.

## Overall Achievement — Applied

| | Exempted | No Data | NEIS | Below Level 1 | Level 1 | Level 2 | Level 3 | Level 4 |
|---|---|---|---|---|---|---|---|---|
| **Method 1** (# = 47 220) | 2% | 7% | 6% | 8% | 19% | 37% | 21% | <1% |
| **Method 2** (# = 42 975) | N/A | N/A | 7% | 9% | 21% | 40% | 23% | <1% |

## By Program — Applied

| | Exempted | No Data | NEIS | Below Level 1 | Level 1 | Level 2 | Level 3 | Level 4 |
|---|---|---|---|---|---|---|---|---|
| **Semester 1 (# = 20 956)** | | | | | | | | |
| Method 1 | 2% | 6% | 6% | 9% | 19% | 37% | 21% | <1% |
| **Semester 2 (# = 14 632)** | | | | | | | | |
| Method 1 | 2% | 7% | 6% | 8% | 19% | 37% | 20% | <1% |
| **Full Year (# = 4526)** | | | | | | | | |
| Method 1 | 3% | 6% | 8% | 8% | 19% | 34% | 21% | <1% |

**Observations**

- The percentages of students at or above the provincial standard were about the same for students in semestered and full-year programs.

## By Gender — Applied

| | Exempted | No Data | NEIS | Below Level 1 | Level 1 | Level 2 | Level 3 | Level 4 |
|---|---|---|---|---|---|---|---|---|
| **Girls (# = 20 786)** | | | | | | | | |
| Method 1 | 2% | 6% | 5% | 8% | 20% | 38% | 20% | <1% |
| **Boys (# = 25 615)** | | | | | | | | |
| Method 1 | 3% | 6% | 7% | 8% | 19% | 36% | 21% | <1% |

**Observations**

- Boys and girls performed almost equally well.

Note: Results for gender are based upon the number of students for whom gender data were reported.

## By Student Status (ESL/ELD) — Applied

| | Exempted | No Data | NEIS | Below Level 1 | Level 1 | Level 2 | Level 3 | Level 4 |
|---|---|---|---|---|---|---|---|---|
| **Non-ESL/ELD (# = 45 126)** | | | | | | | | |
| Method 1 | 1% | 7% | 6% | 8% | 19% | 37% | 21% | <1% |
| **ESL/ELD (# = 2094)** | | | | | | | | |
| Method 1 | 23% | 3% | 6% | 18% | 19% | 21% | 9% | <1% |

**Observations**

- 9% of ESL/ELD students were at Level 3 or above.
- 23% were exempted.

## By Special Education Support (Excluding Gifted) — Applied

| | Exempted | No Data | NEIS | Below Level 1 | Level 1 | Level 2 | Level 3 | Level 4 |
|---|---|---|---|---|---|---|---|---|
| **Not Receiving Support (# = 38 351)** | | | | | | | | |
| Method 1 | 2% | 7% | 6% | 7% | 18% | 37% | 23% | <1% |
| **Receiving Support (# = 8869)** | | | | | | | | |
| Method 1 | 5% | 5% | 8% | 13% | 24% | 33% | 13% | <1% |

**Observations**

- 13% of special needs students were at Level 3 or above.
- Only 5% were exempted.

## Overall Achievement by Category — Applied

See Appendix A for definitions of the categories.

| Knowledge/Skills Categories | Exempted | No Data | NEIS | Below Level 1 | Level 1 | Level 2 | Level 3 | Level 4 |
|---|---|---|---|---|---|---|---|---|
| **Knowledge/Understanding** | | | | | | | | |
| Method 1 (# = 47 220) | 2% | 7% | 4% | 9% | 19% | 34% | 24% | <1% |
| Method 2 (# = 42 975) | N/A | N/A | 5% | 10% | 21% | 38% | 26% | <1% |
| **Application** | | | | | | | | |
| Method 1 (# = 47 220) | 2% | 7% | 4% | 24% | 21% | 27% | 13% | 2% |
| Method 2 (# = 42 975) | N/A | N/A | 4% | 26% | 23% | 30% | 15% | 2% |
| **Thinking/Inquiry/Problem Solving** | | | | | | | | |
| Method 1 (# = 47 220) | 2% | 7% | 5% | 3% | 37% | 26% | 20% | 1% |
| Method 2 (# = 42 975) | N/A | N/A | 5% | 3% | 40% | 29% | 21% | 1% |
| **Communication** | | | | | | | | |
| Method 1 (# = 47 220) | 2% | 7% | 5% | 6% | 13% | 54% | 12% | <1% |
| Method 2 (# = 42 975) | N/A | N/A | 6% | 7% | 14% | 60% | 14% | <1% |

**Observations**

- Overall student achievement in the categories was higher than last year.
- 24% achieved the provincial standard or above in knowledge and understanding.
- 20% achieved the provincial standard or above in thinking, inquiry and problem solving.
- Only 15% of the students achieved the provincial standard or above in application, and 12% in communication.

## Overall Achievement by Strand — Applied

See Appendix A for definitions of the strands.

| Knowledge/Skills Categories | Exempted | No Data | NEIS | Below Level 1 | Level 1 | Level 2 | Level 3 | Level 4 |
|---|---|---|---|---|---|---|---|---|
| **Number Sense and Algebra** | | | | | | | | |
| Method 1 (# = 47 220) | 2% | 7% | 5% | 17% | 12% | 34% | 23% | <1% |
| Method 2 (# = 42 975) | N/A | N/A | 5% | 18% | 13% | 38% | 26% | 1% |
| **Relationships** | | | | | | | | |
| Method 1 (# = 47 220) | 2% | 7% | 7% | 2% | 19% | 45% | 17% | <1% |
| Method 2 (# = 42 975) | N/A | N/A | 7% | 3% | 21% | 50% | 19% | <1% |
| **Analytic Geometry** | | | | | | | | |
| Method 1 (# = 47 220) | 2% | 7% | 7% | 6% | 22% | 34% | 22% | 1% |
| Method 2 (# = 42 975) | N/A | N/A | 8% | 6% | 24% | 37% | 24% | 1% |
| **Measurement and Geometry** | | | | | | | | |
| Method 1 (# = 47 220) | 2% | 7% | 6% | 12% | 17% | 39% | 17% | <1% |
| Method 2 (# = 42 975) | N/A | N/A | 7% | 13% | 19% | 42% | 18% | <1% |

**Observations**

- Overall student achievement in the strands was higher than last year.
- 23% achieved the provincial standard or above in both number sense and algebra, and analytic geometry.
- In both relationships, and measurement and geometry, 17% of the students achieved the provincial standard or above.

## Student Questionnaire Data — Applied

| | Percentage |
|---|---|
| **How often in the past month have you been absent from mathematics class?** | |
| Never | 22% |
| 1–2 Times | 38% |
| 3–4 Times | 20% |
| 5 or More Times | 18% |

**Observations**

- 18% of the students indicated that they had been absent from mathematics class five or more times in the past month.

| | Yes | No |
|---|---|---|
| Do you have a computer at home that you use for school work? | 80% | 19% |
| Do you have a scientific calculator at home that you use for school work? | 75% | 24% |
| Do you have a graphing calculator at home that you use for school work? | 5% | 94% |

**Observations**

- 80% of the students indicated that they had a computer at home to use for school work.

## Teacher Questionnaire Data — Applied

*In general, how often do your Grade 9 mathematics students have access to the following items at school (either during or after class)?*

| | Daily | A Few Times a Week | A Few Times a Month | A Few Times During the Course | Never or Hardly Ever |
|---|---|---|---|---|---|
| Computers | 19% | 4% | 8% | 33% | 32% |
| Graphing Calculators | 18% | 8% | 19% | 38% | 14% |

**Observations**

- 65% of the teachers indicated that their students had access to computers at school (either during or after class) only a few times during the course, or never or hardly ever.
- 52% of the teachers indicated that their students had access to graphing calculators at school (either during or after class) only a few times during the course, or never or hardly ever.

*How often did you have your Grade 9 mathematics students*

| | Daily | A Few Times a Week | A Few Times a Month | A Few Times During the Course | Never or Hardly Ever |
|---|---|---|---|---|---|
| use concrete materials to investigate and gain an understanding of new concepts? | 3% | 15% | 31% | 39% | 10% |
| use graphing calculators to explore and investigate mathematical ideas and relationships? | 2% | 4% | 16% | 49% | 25% |
| use dynamic geometry software (e.g., The Geometer's Sketchpad, Cabri)? | <1% | 1% | 5% | 37% | 54% |

**Observations**

- 49% of teachers indicated that they had used concrete materials; 22% indicated that they had used graphing calculators; and 6% indicated that they had used dynamic geometry software at least a few times a month.

*In the past semester/year, what percentage of course time did you spend teaching the following mathematics strands?*

| | 1–20% | 21–40% | 41–60% | 61–80% | 81–100% |
|---|---|---|---|---|---|
| Number Sense and Algebra | 10% | 63% | 19% | 3% | 1% |
| Relationships | 14% | 66% | 13% | 2% | <1% |
| Analytic Geometry | 38% | 53% | 4% | 1% | <1% |
| Measurement and Geometry | 54% | 40% | 2% | 1% | <1% |

*How often did you have your Grade 9 mathematics students engage in activities related to the following achievement categories?*

| | Daily | A Few Times a Week | A Few Times a Month | A Few Times During the Course | Never or Hardly Ever |
|---|---|---|---|---|---|
| Knowledge/Understanding | 65% | 21% | 8% | 3% | <1% |
| Application | 23% | 40% | 25% | 9% | 1% |
| Problem Solving | 27% | 34% | 25% | 9% | 1% |
| Communication | 30% | 41% | 19% | 6% | 1% |

*Including this year, for how many years have you been teaching*

| | 5 Years or Less | 6–10 Years | 11 Years or More |
|---|---|---|---|
| mathematics at the secondary level? | 52% | 14% | 31% |
| Grade 9 mathematics? | 67% | 14% | 17% |

**Observations**

- 52% of the teachers reported they had been teaching at the secondary level for five years or less.
- 67% indicated they had been teaching Grade 9 mathematics for five years or less.

*While studying to obtain your bachelor's degree (or equivalent), what was your*

| | Mathematics | Math-Related Subject | Other |
|---|---|---|---|
| major area of study? | 31% | 33% | 32% |
| minor area of study? | 19% | 40% | 34% |

**Observations**

- 32% of teachers indicated that their major area of study was one other than mathematics or a mathematics-related subject.

*Which of the following have you completed or are you presently working towards?*

| | Yes | No |
|---|---|---|
| Additional Basic Qualifications in Mathematics | 28% | 61% |
| Three-Session Qualifications in Mathematics — Intermediate and Senior Education | 22% | 66% |
| Honours Specialist Qualifications in Mathematics | 22% | 68% |

**Observations**

- Only 22% of teachers indicted that they had completed or were presently working toward additional basic qualifications in mathematics; 22% indicated that they had completed or were working toward intermediate and senior qualifications; and 22% indicated that they had completed or were working toward honours specialist qualifications in mathematics.

## Profile of Students Who Wrote the Assessment — Academic*

Number of Students

| First Semester | Second Semester | Full Year | Total** |
|---|---|---|---|
| 40 865 | 30 198 | 12 265 | 99 094 |

| Gender | Percentage |
|---|---|
| Male | 49% |
| Female | 50% |
| No Response | 2% |

| Place of Birth | Percentage |
|---|---|
| Inside Canada | 80% |
| Outside Canada | 20% |
| No Response | <1% |

| Year of Birth | Percentage |
|---|---|
| 1985 or Before | 1% |
| 1986 | 5% |
| 1987 | 93% |
| 1988 | 1% |
| No Response | <1% |

| Language(s) Spoken at Home | Percentage |
|---|---|
| Only English | 62% |
| Mostly English | 18% |
| English as Often as Another Language | 11% |
| Mostly Another Language | 7% |
| Only Another Language | 2% |
| No Response | <1% |

**Observations**

- 20% of the students were born outside Canada.
- 93% of the students appear to be at the age expected for the cohort.

* "Academic courses develop students' knowledge and skills through the study of theory and abstract problems. These courses focus on the essential concepts of a subject and explore related concepts as well. They incorporate practical applications as appropriate." *The Ontario Curriculum, Grades 9 to 12: Program Planning and Assessment, 2000*

** Some schools did not indicate whether students were enrolled in a semestered or full-year course. As a result, there are students who are not counted as part of the first-semester, second-semester or full-year statistics.

## Accommodations and Special Provisions — Academic

| | Percentage |
|---|---|
| **Students Who Received Accommodations and Special Provisions** | <1% |
| **Students Who Received Accommodations** | 2% |
| **Students Who Received Special Provisions** | 1% |
| **Students Who Received No Accommodations or Special Provisions** | 95% |
| **Students for Whom Information Is Missing** | <1% |

## Participation — Academic

| | Eligible Population | Percentage No Data | Percentage Exempted | Percentage Fully Participating |
|---|---|---|---|---|
| **All Academic Students** | 99 094 | 1% | <1% | 98% |
| **Gender** | | | | |
| **Female** | 49 772 | 1% | <1% | 99% |
| **Male** | 48 181 | 1% | 1% | 98% |
| **Student Status** | | | | |
| **ESL/ELD** | 2 693 | 1% | 12% | 87% |
| **Special Needs** | 2 386 | 2% | 2% | 96% |

**Observations**

- 50% of academic students were female; 49% were male and 1% were unspecified.
- 3% of academic students were identified as ESL/ELD.
- 2% of academic students were identified as special needs students.
- 12% of students identified as ESL/ELD were exempted.

# Overall Achievement — Academic

| | Exempted | No Data | NEIS | Below Level 1 | Level 1 | Level 2 | Level 3 | Level 4 |
|---|---|---|---|---|---|---|---|---|
| **Method 1 (# = 95 094)** | <1% | 1% | 3% | <1% | 14% | 17% | 58% | 5% |
| **Method 2 (# = 97 252)** | N/A | N/A | 3% | <1% | 14% | 18% | 59% | 5% |

## By Program — Academic

| | Exempted | No Data | NEIS | Below Level 1 | Level 1 | Level 2 | Level 3 | Level 4 |
|---|---|---|---|---|---|---|---|---|
| **Semester 1 (# = 40 865)** | | | | | | | | |
| Method 1 | 1% | 1% | 3% | <1% | 14% | 17% | 58% | 5% |
| **Semester 2 (# = 30 198)** | | | | | | | | |
| Method 1 | <1% | 2% | 3% | <1% | 14% | 18% | 58% | 5% |
| **Full Year (# = 12 265)** | | | | | | | | |
| Method 1 | <1% | 1% | 4% | <1% | 12% | 15% | 59% | 8% |

**Observations**

- The percentages of students at or above the provincial standard were approximately the same for students in semestered and full-year programs.

## By Gender — Academic

| | Exempted | No Data | NEIS | Below Level 1 | Level 1 | Level 2 | Level 3 | Level 4 |
|---|---|---|---|---|---|---|---|---|
| **Girls (# = 49 772)** | | | | | | | | |
| Method 1 | <1% | 1% | 3% | <1% | 15% | 18% | 58% | 5% |
| **Boys (# = 48 181)** | | | | | | | | |
| Method 1 | 1% | 1% | 3% | 1% | 13% | 16% | 59% | 6% |

**Observations**

- Girls and boys performed almost equally well.

Note: Results for gender are based upon the number of students for whom gender data were reported.

## By Student Status (ESL/ELD) — Academic

| | Exempted | No Data | NEIS | Below Level 1 | Level 1 | Level 2 | Level 3 | Level 4 |
|---|---|---|---|---|---|---|---|---|
| **Non-ESL/ELD (# = 96 401)** | | | | | | | | |
| Method 1 | <1% | 1% | 3% | <1% | 14% | 17% | 59% | 5% |
| **ESL/ELD (# = 2693)** | | | | | | | | |
| Method 1 | 12% | 1% | 3% | 2% | 23% | 15% | 38% | 6% |

**Observations**

- 44% of students identified as ESL/ELD performed at Level 3 or above.
- 12% of students identified as ESL/ELD were exempted.

## By Special Education Support (Excluding Gifted) — Academic

| | Exempted | No Data | NEIS | Below Level 1 | Level 1 | Level 2 | Level 3 | Level 4 |
|---|---|---|---|---|---|---|---|---|
| **Not Receiving Support (# = 96 708)** | | | | | | | | |
| Method 1 | <1% | 1% | 3% | <1% | 14% | 17% | 59% | 5% |
| **Receiving Support (# = 2386)** | | | | | | | | |
| Method 1 | 2% | 2% | 4% | 2% | 26% | 22% | 41% | 2% |

**Observations**

- 43% of students identified as having special needs performed at Level 3 or above.
- Only 2% of students identified as having special needs were exempted.

## Overall Achievement by Category — Academic

See Appendix A for definitions of the categories.

| Knowledge/Skills Categories | Exempted | No Data | NEIS | Below Level 1 | Level 1 | Level 2 | Level 3 | Level 4 |
|---|---|---|---|---|---|---|---|---|
| **Knowledge/Understanding** | | | | | | | | |
| Method 1 (# = 99 094) | <1% | 1% | 3% | <1% | 14% | 14% | 63% | 4% |
| Method 2 (# = 97 252) | N/A | N/A | 3% | <1% | 14% | 14% | 64% | 4% |
| **Application** | | | | | | | | |
| Method 1 (# = 99 094) | <1% | 1% | 2% | 4% | 14% | 11% | 58% | 10% |
| Method 2 (# = 97 252) | N/A | N/A | 2% | 4% | 14% | 11% | 59% | 10% |
| **Thinking/Inquiry/Problem Solving** | | | | | | | | |
| Method 1 (# = 99 094) | <1% | 1% | 1% | 1% | 28% | 15% | 44% | 8% |
| Method 2 (# = 97 252) | N/A | N/A | 1% | 1% | 28% | 15% | 45% | 8% |
| **Communication** | | | | | | | | |
| Method 1 (# = 99 094) | <1% | 1% | 2% | <1% | 6% | 35% | 54% | 1% |
| Method 2 (# = 97 252) | N/A | N/A | 2% | <1% | 6% | 36% | 55% | 1% |

**Observations**

- Overall student achievement in the categories was higher than last year.
- 67% achieved the provincial standard or above in knowledge and understanding.
- 68% achieved the provincial standard or above in application.
- 52% achieved the provincial standard or above in thinking, inquiry and problem solving.
- 55% achieved the provincial standard or above in communication.
-

## Overall Achievement by Strand — Academic

See Appendix A for definitions of the strands.

| Knowledge/Skills Categories | Exempted | No Data | NEIS | Below Level 1 | Level 1 | Level 2 | Level 3 | Level 4 |
|---|---|---|---|---|---|---|---|---|
| **Number Sense and Algebra** | | | | | | | | |
| Method 1 (# = 99 094) | <1% | 1% | 2% | <1% | 12% | 20% | 60% | 4% |
| Method 2 (# = 97 252) | N/A | N/A | 2% | <1% | 12% | 20% | 61% | 4% |
| **Relationships** | | | | | | | | |
| Method 1 (# = 99 094) | <1% | 1% | 3% | <1% | 10% | 19% | 52% | 13% |
| Method 2 (# = 97 252) | N/A | N/A | 3% | <1% | 10% | 20% | 53% | 14% |
| **Analytic Geometry** | | | | | | | | |
| Method 1 (# = 99 094) | <1% | 1% | 2% | <1% | 12% | 30% | 51% | 2% |
| Method 2 (# = 97 252) | N/A | N/A | 2% | <1% | 12% | 31% | 52% | 3% |
| **Measurement and Geometry** | | | | | | | | |
| Method 1 (# = 99 094) | <1% | 1% | 2% | 2% | 15% | 18% | 59% | 2% |
| Method 2 (# = 97 252) | N/A | N/A | 3% | 2% | 15% | 19% | 60% | 2% |

**Observations**

- Overall student achievement in the strands was higher than last year.
- 64% achieved the provincial standard or above in number sense and algebra.
- 65% achieved the provincial standard or above in relationships.
- 53% achieved the provincial standard or above in analytic geometry.
- 61% achieved the provincial standard or above in measurement and geometry.

## Student Questionnaire Data — Academic

| | Percentage |
|---|---|
| **What language(s) do you speak at home?** | |
| Only English | 62% |
| Mostly English | 18% |
| English as Often as Another Language (or Languages) | 11% |
| Mostly Another Language (or Other Languages) | 7% |
| Only Another Language (or Other Languages) | 2% |
| **How often in the past month have you been absent from mathematics class?** | |
| Never | 32% |
| 1–2 Times | 44% |
| 3–4 Times | 15% |
| 5 or More Times | 8% |

**Observations**

- 8% of the students indicated that they had been absent from mathematics class five or more times in the past month.

| | Yes | No |
|---|---|---|
| Do you have a computer at home that you use for school work? | 95% | 5% |
| Do you have a scientific calculator at home that you use for school work? | 88% | 11% |
| Do you have a graphing calculator at home that you use for school work? | 5% | 94% |

**Observations**

- 95% of students indicated that they had a computer at home to use for school work.

## Teacher Questionnaire Data — Academic

*In general, how often do your Grade 9 mathematics students have access to the following items at school (either during or after class)?*

| | Daily | A Few Times a Week | A Few Times a Month | A Few Times During the Course | Never or Hardly Ever |
|---|---|---|---|---|---|
| Computers | 20% | 6% | 10% | 39% | 24% |
| Graphing Calculators | 21% | 11% | 24% | 37% | 4% |

**Observations**

- 63% of teachers indicated that their students had access to computers at school (either during or after class) only a few times during the course, or never or hardly ever.
- 41% of teachers indicated that their students had access to graphing calculators at school (either during or after class) only a few times during the course, or never or hardly ever.

*How often did you have your Grade 9 mathematics students*

| | Daily | A Few Times a Week | A Few Times a Month | A Few Times During the Course | Never or Hardly Ever |
|---|---|---|---|---|---|
| use concrete materials to investigate and gain an understanding of new concepts? | 3% | 11% | 29% | 42% | 13% |
| use graphing calculators to explore and investigate mathematical ideas and relationships? | 1% | 6% | 27% | 53% | 10% |
| use dynamic geometry software (e.g., The Geometer's Sketchpad, Cabri)? | 1% | 1% | 6% | 51% | 39% |

**Observations**

- 43% of teachers indicated that they had used concrete materials; 34% indicated that they had used graphing calculators; and 8% indicated that they had used dynamic geometry software at least a few times a month.

*In the past semester/year, what percentage of course time did you spend teaching the following mathematics strands?*

| | 1–20% | 21–40% | 41–60% | 61–80% | 81–100% |
|---|---|---|---|---|---|
| Number Sense and Algebra | 14% | 65% | 14% | 3% | 1% |
| Relationships | 12% | 67% | 13% | 4% | 1% |
| Analytic Geometry | 28% | 61% | 7% | 1% | <1% |
| Measurement and Geometry | 55% | 38% | 2% | <1% | <1% |

*How often did you have your Grade 9 mathematics students engage in activities related to the following achievement categories?*

| | Daily | A Few Times a Week | A Few Times a Month | A Few Times During the Course | Never or Hardly Ever |
|---|---|---|---|---|---|
| Knowledge/Understanding | 72% | 17% | 7% | 2% | <1% |
| Application | 28% | 42% | 21% | 6% | <1% |
| Problem Solving | 37% | 34% | 20% | 6% | 1% |
| Communication | 40% | 39% | 15% | 4% | <1% |

*Including this year, for how many years have you been teaching*

| | 5 Years or Less | 6–10 Years | 11 Years or More |
|---|---|---|---|
| mathematics at the secondary level? | 44% | 16% | 37% |
| Grade 9 mathematics? | 59% | 16% | 23% |

**Observations**

- 44% of the teachers reported they had been teaching at the secondary level five years or less.
- 59% indicated they had been teaching Grade 9 mathematics for five years or less.

*While studying to obtain your bachelor's degree (or equivalent), what was your*

| | Mathematics | Math-Related Subject | Other |
|---|---|---|---|
| major area of study? | 41% | 33% | 22% |
| minor area of study? | 24% | 42% | 29% |

**Observations**

- 22% of teachers indicated their major area of study was one other than mathematics or a mathematics-related subject.

*Which of the following have you completed or are you presently working towards?*

| | Yes | No |
|---|---|---|
| Additional Basic Qualifications in Mathematics | 33% | 55% |
| Three-Session Qualifications in Mathematics — Intermediate and Senior Education | 23% | 63% |
| Honours Specialist Qualifications in Mathematics | 29% | 62% |

**Observations**

- Only 33% of teachers indicated that they had completed or were presently working toward additional basic qualifications in mathematics; 23% indicated that they had completed or were presently working toward intermediate and senior qualifications; and 29% indicated that they had completed or were presently working toward honours specialist qualifications in mathematics.

# *Recommendations*

## Planning for Improvement

### EQAO recommends

- that **school boards,** in consultation with their communities, incorporate the overall, category and strand data from the Grade 9 Assessment of Mathematics, 2001–2002 into their current board improvement plans and develop further strategies for improving student achievement in mathematics.
- that **school boards, principals and teachers** consult with students, parents and school councils to examine the category and strand information in order to identify areas in the mathematics curriculum in which students are demonstrating strengths and areas in which improvements are required.
- that **school boards, principals and teachers** examine achievement results from the 2000–2001 and 2001–2002 assessments to determine where improvement has occurred and which improvement strategies have had the greatest impact.
- that **school boards** analyze aggregated as well as disaggregated achievement and contextual data in planning for improvement and identify strategies that target areas and groups in need of additional support, motivation and improvement, especially those students not yet achieving the provincial standard.
- that **school boards, principals and teachers** examine the teacher and student questionnaire data for applied and academic courses to ensure that the strategies and resources being used to teach and assess each course appropriately reflect the needs and motivation of students.

## Support for Teachers

### EQAO recommends

- that the **Ministry of Education, faculties of education,** the **Ontario College of Teachers** (through Professional Learning Program providers), **mathematics associations** and **school boards** continue to support new and experienced teachers and provide them with professional development opportunities related to teaching and assessing mathematics.
- that **school boards and principals** establish mentoring programs for teachers new to teaching Grade 9 mathematics.
- that **schools boards and principals,** in co-operation with the **Ministry of Education,** develop teaching strategies to improve learning and assessment and provide opportunities for teachers to add additional teaching and assessment strategies to their repertoire.

- that **teachers** continue to use the sample questions, tasks and student work from the 2000–2001 and the 2001–2002 assessments (available on EQAO's Web site) to help students understand how questions and tasks relate to the category and strand expectations in the mathematics curriculum.

- that **school boards and principals,** in co-operation with the Ministry of Education, continue to ensure that the necessary concrete materials (e.g., algebra tiles) and technology (e.g., graphing calculators, dynamic geometry software) are available to students and teachers.

# Appendix A — Definitions of Categories and Strands

## Categories

| Categories |
|---|
| **Knowledge and Understanding**<br>– understanding of concepts<br>– performing algorithms, operations and procedures |
| **Application**<br>– selecting concepts, formulas, algorithms and tools to fit the information given |
| **Thinking, Inquiry and Problem Solving**<br>– reasoning<br>– applying the steps of an inquiry or problem-solving process |
| **Communication**<br>– explaining reasoning<br>– using mathematical language, symbols, visuals and conventions |

| Strands |
|---|
| **Number Sense and Algebra**<br>– applying essential numeric skills in solving new problems within a context (rather than in isolation)<br>– applying algebraic concepts and skills (basic exponent rules, operations with first-degree polynomials and solving first-degree equations) necessary for the study and application of relations (e.g., consolidating numerical skills by using them in a variety of contexts) |
| **Relationships**<br>– identifying and understanding the properties of linear relations through the collection and interpretation of data from a variety of real-life situations and the creation of algebraic models for the data (e.g., determining relationships between two variables by collecting and analyzing data) |
| **Analytic Geometry**<br>– using various mathematical forms to demonstrate understanding of the geometry of the *xy*-plane, with a focus on linear relations and properties of slope (e.g., graphing a line and writing the equation of a line from given information) |
| **Measurement and Geometry**<br>– understanding and using formulas and applications of three-dimensional figures to explore the relationships between measurement and geometry (e.g., relationship between volume and surface area, varying of one dimension on a measure)<br>– demonstrating an understanding of some properties of triangles and quadrilaterals (e.g., determining the optimal values of various measurements through investigations facilitated by the use of concrete materials, diagrams and calculators or computer software) |

Education
Quality and
Accountability
Office

# *Ontario Secondary School Literacy Test, February 2002*

## Report of Provincial Results

*September 2002*

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## Results at a Glance

### Overall Results for English-Language Students Who Wrote the Ontario Secondary School Literacy Test, February 2002 (publicly funded schools)[1]

| | February 2002 | | October 2000 | |
|---|---|---|---|---|
| | # | % | # | % |
| **Passed Both Reading and Writing** | 97 227 | 75% | 86 248 | 68% |
| **Passed Only Reading** | 6 747 | 5% | 15 154 | 12% |
| **Passed Only Writing** | 12 209 | 9% | 6 945 | 5% |
| **Failed Both Reading and Writing** | 12 849 | 10% | 18 699 | 15% |
| **Number of Students Who Wrote Both Parts of the OSSLT** | 129 032 | | 127 046 | |

### Highlights of Achievement Results

- In February 2002, 75% of students passed both the reading and the writing components of the test.
- A further 5% of students passed the reading component of the test, bringing the total percentage of students who passed reading to 80%.
- A further 9% of students passed the writing component of the test, bringing the total percentage of students who passed writing to 84%.
- More students passed the February 2002 test than passed the October 2000 trial administration.

### Key Messages

- The results of the February 2002 Ontario Secondary School Literacy Test (OSSLT) are very encouraging; the vast majority of students are meeting the provincial standard for the OSSLT.
- Teachers are making reading and writing a high priority, and their efforts appear to be showing good results.
- The OSSLT is a useful quality assurance measure that shows the extent to which Ontario students are meeting a common, basic standard for literacy across the province.

---

[1] Percentages may not add up to 100%, due to rounding.

- For those relatively few students who did not pass the reading and/or the writing component, the test is an early warning system that provides the students, their parents and their teachers with some important diagnostic information to help the students improve.

- It is important to emphasize that the OSSLT results should be used to improve teaching and learning; they should not be used to rank schools. Ranking provides no information about why scores are high or low; it invites simplistic and misleading comparisons that ignore the particular circumstances affecting achievement in each school, and it distracts people from addressing the more critical issue of how to improve learning for all students.

### Key Recommendations

*EQAO recommends*

- that **school boards**, in consultation with their school communities, and using the EQAO Guide to School and Board Improvement Planning, incorporate the overall and specific data from the February 2002 OSSLT into their existing board and school improvement plans for developing all students' literacy skills. Boards should implement strategies for improving student achievement in reading and writing that extend across the elementary and secondary grades and across all subject areas.

- that **schools**, in consultation with their communities, incorporate the overall and specific data from the February 2002 OSSLT into their existing school literacy improvement plans and develop curriculum-wide strategies for improving student achievement in reading and writing.

- that **teachers** be encouraged to use the resources available on EQAO's Web site to assist students in preparing to write the OSSLT successfully.

- that **parents** enhance their own understanding of the reading and writing skills required for successful completion of the OSSLT and assist students in understanding the relevance and importance of literacy skills to future educational and career opportunities, and in everyday life outside school.

## Background

### Introduction

The purpose of the EQAO is to promote greater accountability in the publicly funded education system in Ontario and to improve the quality of education in the province. In order to fulfill its mandate, EQAO conducts several province-wide assessments, among them the OSSLT.

The results of these assessments provide individual, school and school board data on student achievement. Parents receive an Individual Student Report that provides information on their child's achievement on the assessment. Schools and boards create their own reports, based on EQAO data, for distribution to parents and other stakeholders in the community. EQAO posts board and school results on its Web site for access by the general public.

## Test Design and Development

In 1999, the Ministry of Education established that successful completion of the OSSLT would become one of the 32 requirements for an Ontario Secondary School Diploma (OSSD). The OSSLT is designed to assess the reading and writing skills that students are expected to have learned across all subjects by the end of Grade 9, as outlined in *The Ontario Curriculum*. EQAO is responsible for developing and administering the OSSLT. In October 2000, a province-wide trial administration was undertaken. This assessment provided schools with an opportunity to experience first-hand what the test would be like. (The test was not a graduation requirement for this first group of students.) It also provided EQAO with an opportunity to try out administrative, marking and reporting procedures (refer to Appendix B for the results of the trial administration). The first full administration of the OSSLT was completed in February 2002. This report describes the achievement results for the first group of students for whom successful completion of the OSSLT is a diploma requirement.

Parallel versions of the OSSLT are developed for English- and French-language schools. Although the tests contain different questions, steps are taken to support comparability between the English- and French-language versions. For example, both tests have the same number and kinds of reading selections, writing tasks and questions related to the reading selections. In addition, the French and English markers are trained in the same way, using identical scoring standards and procedures. (Refer to Appendix A for a description of marking and reliability procedures.)

All aspects of the assessment, such as designing, developing, field-testing, marking and reporting, are conducted by EQAO's Education Officers in collaboration with educators from across the province.

The test consists of two integrated components:

- A reading component
- A writing component

In the reading component, students were asked to read a total of 12 short selections, divided into three different text types:

- Information (e.g., explanation, opinion)
- Graphic (e.g., graph, schedule, instructions)
- Narrative (e.g., story, dialogue)

There were three types of questions in the reading component:

- Multiple-choice (40 questions)
- Short-answer (35 questions)
- Questions requiring an explanation (25 questions)

In the writing component, students were asked to complete four writing tasks:

- A summary
- A series of paragraphs expressing an opinion

- A news report
- An information paragraph

## Setting the Standard

Standards or expectations for student achievement are expressions of acceptable or desirable levels of student performance. In some large-scale assessment programs, standards are expressed as minimum achievement scores; in others, standards are descriptions of the student performance that constitutes a minimum acceptable level of achievement. The standards created for the OSSLT are of the latter type; descriptions of student work in reading and writing were developed to describe performances that meet or exceed the minimum criteria (passed) or that do not meet the criteria (did not pass). The following descriptions provide an overview of how student performance is evaluated.

### General English-Language Descriptors: Writing

*Passed*

The student communicates in writing. He or she

- demonstrates an ability to develop, organize and connect main ideas with some supporting information.
- writes in a variety of forms, such as summary, opinion piece, news report and informational paragraph.
- generally uses appropriate words and sentence structure.
- generally does not make errors in spelling, grammar and punctuation that impede meaning.

*Did Not Pass*

The student has difficulty communicating in writing. He or she

- demonstrates limited skill in developing, organizing and connecting main ideas with supporting information.
- writes in a limited variety of forms and finds it difficult to complete such tasks as a summary, an opinion piece, a news report and an informational paragraph.
- uses inappropriate or incorrect words and sentence structure.
- makes errors in spelling, grammar and punctuation that impede meaning.

## General English-Language Descriptors: Reading

*Passed*

The student reads with reasonable accuracy and proficiency. He or shedemonstrates an understanding of directly stated information.

- usually connects relevant ideas and information to understand the meaning.
- has moderate success in integrating personal knowledge and experience to extend meaning.

*Did Not Pass*

The student reads with limited accuracy and proficiency. He or she

- demonstrates a limited understanding of directly stated information.
- rarely connects relevant ideas and information to understand the meaning.
- has difficulty integrating personal knowledge and experience to extend meaning.

The standard was determined through a three-stage process. First, the test was field-tested, and the student papers were scored by educators, using the same procedures that would be used in scoring the actual test. Second, without knowing these scores, a standard-setting committee composed of educators, experts from three Canadian universities and members of the public (including business representatives) examined the same sample of tests and organized them into acceptable and unacceptable performances. This sorting exercise was based on training provided by EQAO and other assessment experts and involved considering the degree of literacy students would need to participate in society. The training included a review of the curriculum requirements and how they relate to the test. Finally, the scores on the tests were examined to determine the pass score that best distinguished those papers that passed from those that did not pass the test. These standards are comparable from one year to the next; therefore, the performance of all students in the future will be evaluated according to these same standards.

## Test Administration

Consistent test administration procedures are important for ensuring fairness for all students. Schools were provided with training (principals and teachers from all French- and English-language schools are given identical training in how to administer the test) and resources (detailed written guides and instructions) to ensure that the same administrative procedures were followed for all students across the province. These procedures are consistent with the Principles for Fair Student Assessment Practices for Education in Canada (1993), a document created by a collection of nationally renowned educational institutions and associations and endorsed widely by education and assessment organizations.

The OSSLT was administered over two blocks of time, two-and-a-half hours each (including breaks and instructions), one on the morning of February 14 and one on the morning of February 15, 2002. Students with special needs were accommodated according to the Ministry's Policy/Program Memorandum No. 127. Some English as a Second Language (ESL) and English Literacy Development

(ELD) students were provided with special provisions described in EQAO's *Guide for Accommodations, Special Provisions, Deferrals and Exemptions.*

Further information about elements of the OSSLT, such as preparation for the test, administration issues and standard setting, are available on the EQAO Web site: www.eqao.com.

## Quality Assurance

Principals were asked to pay particular attention to the handling, security and confidentiality of the assessment materials, so that the conditions for the administration of the OSSLT would be consistent across the province and to ensure that the test items remained secure until the test was given to students.

Quality Assurance monitors visited 90 English-language schools during the administration of the OSSLT. The sample schools visited included public, Catholic and private schools selected at random across the province.

In order to determine consistency in test administration, monitors were asked to examine procedures used to ensure the security of test materials before, during and after the test. Monitors reported that schools maintained tight security over the period of the test. All test materials were found to have been stored in a secure location such as the school vault or the principal's office. In all schools, individual student test materials were kept unopened in their packaging before the start of the test.

Principals reported using a wide range of approaches to create a positive attitude toward the test in their schools. Included were literacy committees, encouragement of all teachers to assume responsibility for literacy in the school, assemblies, tutors, small group meetings with students, communication with parents and a great deal of practice.

## Participation

Students who participated in the February 2002 OSSLT were students who entered Grade 9 in September 2000 and were working toward an OSSD. The following table provides the number of eligible students who took part in the test, as well as the number of students by gender and student status (ESL/ELD and special needs).

*Participation in the February 2002 OSSLT*[2]

| | Eligible Population | Percentage Absent One or Both Days | Percentage Deferred | Percentage Fully Participating |
|---|---|---|---|---|
| **All Students** | 141 061 | 4% | 4% | 91% |
| **Gender** | | | | |
| • Female | 67 586 | 4% | 3% | 93% |
| • Male | 71 131 | 4% | 5% | 91% |
| **Student Status** | | | | |
| • ESL/ELD | 3 768 | 2% | 52% | 46% |
| – with Special Provisions | 1 583 | 3% | 2% | 95% |
| • Special Needs (excluding gifted) | 16 646 | 5% | 10% | 85% |
| – IEP Only (with accommodations) | 2 691 | 5% | 1% | 93% |
| – IEP and IPRC (with accommodations) | 10 692 | 5% | 1% | 94% |

## Gender

The number of eligible English-language students who participated in the OSSLT was 141 061. Of these, 71 131 (50%) were males, 67 586 (48%) were females and 2344 (2%) were unspecified (gender was not reported for some students).

## ESL/ELD Students

ESL students are those who arrive in Canada from another country with a first language other than English and with little or no previous experience with English. Most commonly, ELD students are those who arrive in Canada from countries where English is the first language but other varieties of English are in common use.

Of the total number of eligible students who wrote the OSSLT, the number of students enrolled either in an ESL or an ELD program was 3768 (3%). It is important to note that more than half the ESL and ELD students were deferred.

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[2] Percentages may not add up to 100%, due to rounding.

## Special Provisions

Among the 3768 ESL and ELD students who were eligible for the OSSLT, 1583 (42%) received special provisions, which included changes in setting (e.g., individual study carrel, individual or small-group setting), additional time and/or periodic supervised breaks.

The following table shows the number of ESL/ELD students and the percentage of the ESL/ELD total that received each of the special provisions.

*Number and Percentage of ESL/ELD Students Receiving Special Provisions*

| Changes in Setting | Additional Time | Periodic Supervised Breaks |
|---|---|---|
| 1 201 (76%) | 1 539 (97%) | 886 (56%) |

- The total number of special provisions exceeds the total number of students who received these provisions, since many students in ESL and ELD programs needed more than one type of special provision.
- Just over half of these students received all three special provisions.

## Students with Special Needs

Students with special needs are those who have an Individual Education Plan (IEP), who may or may not have been identified as "exceptional pupils" by an Identification, Placement and Review Committee (IPRC) and who are receiving special education programs and services (see Ministry of Education Policy/Program Memorandum No. 127). Of the total number of eligible students, the number of students with special needs was 16 646 (12%). (This number does not include gifted students.)

## Accommodations

Students receiving accommodations are those with an IEP, who may or may not have been identified as "exceptional pupils" by an IPRC. The EQAO *Guide for Accommodations, Special Provisions, Deferrals and Exemptions* describes various types of accommodations that are grouped under the following four broad categories:

1. Setting of the Test (e.g., an individual or small-group setting in a separate location or familiar space, an individual study carrel, special lighting or adaptive equipment and technology resources such as a Kurzweil reader)
2. Timing (e.g., additional time for the test beyond the time assigned or periodic supervised breaks)
3. Presentation Format (e.g., signed language, an oral interpreter or Braille, large-print or audiotaped versions of the test)
4. Response Format (e.g., audiotaped responses to the test, verbatim scribing of responses or use of computer or word processor for responses)

A total of 13 383 (9%) students were provided with various types of accommodations to enable them to participate in the OSSLT. This number includes students who were identified by an IPRC as well as students who have an IEP.

The following table shows the number and the percentage of accommodated students who received each of the types of accommodation.

*Number and Percentage of Accommodated Students Receiving Each Type of Accommodation*

| Changes in Setting | Additional Time | Different Presentation Format | Different Response Format | Other Accommodation |
|---|---|---|---|---|
| 11 469 (86%) | 12 873 (96%) | 3 404 (25%) | 2 722 (20%) | 95 (1%) |

- Students with special needs often require two or more types of accommodation. For example, students who are blind may require Braille or large print and may also require extra time, scribing, breaks and/or a separate location. For this reason, the total number of accommodations provided exceeds the total number of students who were accommodated.
- Most accommodated students were provided with two accommodations.
- The most common accommodations provided were changes in the test setting and extra time.

## Achievement Results

The following table provides a summary of provincial achievement results from the February 2002 OSSLT. The table includes all students who were eligible to write the OSSLT during the 2001–2002 school year. The number of students who were exempted from participation because they were not working toward an OSSD appears in the table. Exempted students are not included in the count of eligible students nor are they reflected in the calculation of any percentages in this or any subsequent tables.

Students can be deferred under several circumstances, as outlined in EQAO's *Guide for Accommodations, Special Provisions, Deferrals and Exemptions.* A student is categorized as deferred only if the Student Information Form indicates a deferral and there is no work in any of the student's test booklets. If a student completes any portion of the OSSLT, he or she is not categorized as deferred.

The following tables present achievement information, including results by gender, for ESL/ELD and Special Education students, as well as for students in applied and academic programs, from the first full administration of the OSSLT in February 2002. Clearly, some students need extra support in order to meet the provincial literacy standard. The information shown here will help to focus educators and other stakeholders on the areas in which students need to improve.

## Summary of Results

| | Number | Percentage[3] | |
|---|---|---|---|
| | | Method 1[4] | Method 2[5] |
| **Successfully Completed the OSSLT** – Passed both reading and writing | 97 227 | 69% | 75% |
| **Wrote the OSSLT But Were Not Successful** | | | |
| – Passed Reading Only | 6 747 | 5% | 5% |
| – Passed Writing Only | 12 209 | 9% | 9% |
| – Did Not Pass Reading or Writing | 12 849 | 9% | 10% |
| **Total Fully Participating in the OSSLT (present on both testing days)** | 129 032 | 91% | 100% |
| **Absent One or Both Days** | 5 889 | 4% | |
| **Deferred** | 6 140 | 4% | |
| **Total Eligible Students** | 141 061 | 100% | |
| **Exempt** | 1 147 | | |

[3] Percentages may not add up to 100%, due to rounding.

[4] Method 1 provides a percentage breakdown of all students in the cohort who are working toward an OSSD. The only students excluded from the percentages in Method 1 are those who were not working toward an OSSD and who were therefore exempted.

[5] Method 2 provides a percentage breakdown of those students who fully participated in the OSSLT. Students are considered to have fully participated if they were present on both days of the administration.

## Results by Student Characteristic

The percentages provided for various student characteristics below are based on Method 2 (all students who fully participated in the OSSLT).

### Results by Gender[6]

| | Successfully Completed the OSSLT | Passed Reading Only | Passed Writing Only | Did Not Pass Reading or Writing |
|---|---|---|---|---|
| **All Students** # = 129 032 | 75% | 5% | 9% | 10% |
| **Females** # = 62 931 | 80% | 4% | 9% | 7% |
| **Males** # = 64 744 | 70% | 7% | 10% | 13% |

*Observations:*

- A larger percentage of female (80%) than male students (70%) successfully completed the OSSLT.
- A larger percentage of males (13%) than females (7%) did not pass reading or writing.

### Results by ESL/ELD

| | Successfully Completed the OSSLT | Passed Reading Only | Passed Writing Only | Did Not Pass Reading or Writing |
|---|---|---|---|---|
| **ESL/ELD** # = 1 735 | 37% | 3% | 26% | 34% |

*Observations:*

- 63% of ESL/ELD students who wrote the test passed the writing component.
- 40% of ESL/ELD students who wrote the test passed the reading component.
- Of those ESL/ELD students who passed only one component, a larger percentage passed the writing component than passed the reading component.
- As previously noted, the number of ESL/ELD students eligible to write the test was 3768, of whom 1944 were deferred.

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[6] Results by gender are based upon the number of students for whom gender data were available. The number of students for whom gender was not specified was 1357.

## Results for ESL/ELD Students Receiving Special Provisions

| | Successfully Completed the OSSLT | Passed Reading Only | Passed Writing Only | Did Not Pass Reading or Writing |
|---|---|---|---|---|
| **ESL/ELD Receiving Special Provisions** # = 1 512 | 43% | 3% | 27% | 26% |

*Observations:*

- 70% of ESL/ELD students receiving special provisions passed the writing component.
- 46% of ESL/ELD students receiving special provisions passed the reading component.
- Of those ESL/ELD students receiving special provisions who passed only one component, a larger percentage passed the writing component than passed the reading component.

## Results for Students with Special Needs

| | Successfully Completed the OSSLT | Passed Reading Only | Passed Writing Only | Did Not Pass Reading or Writing |
|---|---|---|---|---|
| **Special Needs (excludes gifted)** # = 14 150 | 40% | 6% | 23% | 31% |

*Observations:*

- 63% of students with special needs who wrote the test passed the writing component.
- 46% of students with special needs who wrote the test passed the reading component.
- Of those special needs students who passed only one component, a larger percentage passed the writing component than passed the reading component.

## Results for Students Receiving Accommodations

| | Successfully Completed the OSSLT | Passed Reading Only | Passed Writing Only | Did Not Pass Reading or Writing |
|---|---|---|---|---|
| **Receiving Accommodations, IEP Only** # = 2 517 | 43% | 6% | 25% | 25% |
| **Receiving Accommodations, IEP and IPRC** # = 10 027 | 37% | 6% | 24% | 33% |

*Observations:*

- 68% of IEP students receiving accommodations passed the writing component.
- 49% of IEP students receiving accommodations passed the reading component.
- 61% of IEP and IPRC students receiving accommodations passed the writing component.
- 43% of IEP and IPRC students receiving accommodations passed the reading component.
- A larger percentage of IEP and IPRC students receiving accommodations passed the writing component than passed the reading component.

## Results for Students by Program of Study

The results in the following table reflect the achievement of students for whom schools provided information about their program of study. As a result, the total number of students reported may not equal the total number of students who wrote the OSSLT.

| | Successfully Completed the OSSLT | Passed Reading Only | Passed Writing Only | Did Not Pass Reading or Writing |
|---|---|---|---|---|
| **Academic Program**[7] # = 66 577 | 87% | 4% | 5% | 3% |
| **Applied Program**[8] # = 21 581 | 44% | 9% | 22% | 25% |
| **Locally Developed Program**[9] # = 2 237 | 12% | 5% | 22% | 61% |

*Observations:*

- A large majority of students (87%) in the academic program successfully completed the OSSLT.
- Of those students in the applied program who wrote the test, 66% passed the writing component and 53% passed the reading component.
- Of those students in a locally developed program who wrote the test, 34% passed the writing component and 17% passed the reading component.
- Of students from academic, applied and locally developed programs who wrote the test, a larger percentage passed the writing component than passed the reading component.

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[7] "Academic program" refers to students enrolled in the academic level in Mathematics and/or English.

[8] "Applied program" refers to students enrolled in the applied level in **both** Mathematics and English.

[9] "Locally developed program" refers to students enrolled in Mathematics **and/or** English courses developed by a school or school board to meet local needs according to Ministry of Education policy and approval procedures for locally developed courses.

## Summary of Reading Results by Type of Reading Selection, Reading Skill and Reading Strategy[10]

This table summarizes reading scores by reading selection type, reading skill and reading strategy to assist boards in focusing their remedial efforts.

| | Province | |
|---|---|---|
| | **Mean Score on the Reading Component for Students Who Passed Reading** (# = 103 391) | **Mean Score on the Reading Component for Students Who Did Not Pass Reading** (# = 24 022) |
| **Reading Selection Types:** | | |
| – Information (e.g., explanation, opinion) | 69/90 (77%) | 42/90 (47%) |
| – Graphic (e.g., graph, schedule, instructions) | 39/50 (78%) | 25/50 (50%) |
| – Narrative (e.g., story, dialogue) | 50/60 (83%) | 35/60 (58%) |
| **Reading Skills:** | | |
| – Understands directly stated ideas and information | 50/60 (83%) | 34/60 (57%) |
| – Understands indirectly stated ideas and information | 71/90 (79%) | 45/90 (50%) |
| – Makes connections between personal experiences and the ideas and information in the reading selections | 37/50 (74%) | 23/50 (46%) |
| **Reading Strategies:** | | |
| – Vocabulary | 23/30 (77%) | 16/30 (53%) |
| – Syntax | 21/30 (70%) | 11/30 (37%) |
| – Organization | 28/36 (78%) | 17/36 (47%) |
| – Graphic features | 18/24 (75%) | 11/24 (46%) |

[10] Data in this table reflect the number of students who did not use large-print or audiotaped versions of the OSSLT.

The Individual Student Report provides results for each reading skill across the reading selection types for individual remedial purposes. Due to small sample sizes in many schools, summarized reading scores cannot be reliably reported by selection type, reading skill and reading strategy at the school level.

*Observations:*

- This table indicates that for both successful and unsuccessful students, the areas of relative strength are the "Narrative (e.g., story, dialogue)" as a type of reading selection, "Understands directly stated ideas and information" as a reading skill and "Vocabulary" as a reading strategy.

- Areas most in need of improvement for both successful and unsuccessful students are "Information (e.g., explanation, opinion)" as a type of reading selection, "Makes connections between personal experiences and the ideas and information in the reading selections" as a reading skill and "Syntax" as a reading strategy.

## Summary of Writing Results by Writing Task

The following tables include data on all students who wrote the writing component of the OSSLT. The tables describe performance in terms of points, as it is described on the Individual Student Report. Please note that the Annotated Student Responses OSSLT, February 2002 describe the same performance in terms of "columns," referring to the scoring rubric.

### Summary

| | **Province** |
|---|---|
| | **Percentage of Students by Performance on Writing Task** (# = 129 032) |
| **Blank/Illegible (0 Points)** | 13% |
| **Irrelevant Content/Off-Task (0 Points)** | 5% |
| **1 Point** | 2% |
| **2 Points** | 27% |
| **3 Points** | 36% |
| **4 Points** | 17% |

Paragraphs Expressing an Opinion

| | Province |
|---|---|
| | **Percentage of Students by Performance on Writing Task** (# = 129 032) |
| **Blank/Illegible (0 Points)** | 2% |
| **Irrelevant Content/Off-Task (0 Points)** | 5% |
| **1 Point** | <1% |
| **2 Points** | 18% |
| **3 Points** | 50% |
| **4 Points** | 24% |

News Report

| | Province |
|---|---|
| | **Percentage of Students by Performance on Writing Task** (# = 129 032) |
| **Blank/Illegible (0 Points)** | 4% |
| **Irrelevant Content/Off-Task (0 Points)** | 3% |
| **1 Point** | <1% |
| **2 Points** | 13% |
| **3 Points** | 54% |
| **4 Points** | 26% |

### Information Paragraph

| | Province |
|---|---|
| | **Percentage of Students by Performance on Writing Task** (# = 129 032) |
| **Blank/Illegible (0 Points)** | 5% |
| **Irrelevant Content/Off-Task (0 Points)** | 7% |
| **1 Point** | <1% |
| **2 Points** | 15% |
| **3 Points** | 50% |
| **4 Points** | 23% |

*Observations:*

- On three of the writing tasks ("Paragraphs Expressing an Opinion," "News report" and "Information Paragraph"), a high percentage (between 73% and 80%) of students scored three points or more.
- The writing task in most need of improvement is the "Summary" task.

## Results from the Student Questionnaire

Each student who wrote the OSSLT was asked to complete a questionnaire about his or her background, interests and reading and writing activities. The following tables summarize the information gathered.

### Response Rates

| Province | | |
|---|---|---|
| **Eligible Students** | **Completed Questionnaires** | **Response Rate** |
| 141 061 | 128 682 | 91% |

- 91% of the students completed the Student Questionnaire; this represents a very high response rate.

## Student Computer Use, Language and Background[11]

| Percentage of students indicating that | Province | |
|---|---|---|
| | Females (# = 62 779) | Males (# = 64 557) |
| – they have a computer in their home. | 92% | 91% |
| – English is the first language that they learned at home. | 77% | 76% |
| – English is the language spoken most frequently at home. | 77% | 76% |
| – they were born outside Canada. | 18% | 18% |

*Observations:*

- There were no significant differences between male students and female students in the above contextual information.
- A high percentage of both males and females reported that they have access to a computer in their home.

[11] Note: Percentages in the following tables are based on the total number of students who completed a questionnaire and for whom gender data were available.

## Reading and Writing Outside School

| Percentage of students indicating that | Province | |
|---|---|---|
| | Females (# = 62 779) | Males (# = 64 557) |
| – they read English outside school for three or more hours a week (not counting homework). | 39% | 31% |
| – they read the following kinds of material outside school most weeks: | | |
| • biographies or other non-fiction books | 21% | 18% |
| • comics | 26% | 33% |
| • Internet material | 75% | 69% |
| • letters | 46% | 17% |
| • magazines | 82% | 64% |
| • manuals, instructions | 10% | 23% |
| • newspapers | 44% | 48% |
| • novels, fiction, short stories | 63% | 41% |
| • poetry, song lyrics | 45% | 20% |
| • religious or spiritual readings | 14% | 10% |
| – they write in English outside school for three or more hours a week (not counting homework). | 33% | 25% |
| – they do the following types of writing outside school most weeks: | | |
| • e-mail messages, chat-room conversations | 87% | 82% |
| • letters, journals, diaries | 66% | 15% |
| • notes, directions, instructions | 45% | 30% |
| • song lyrics, poems | 32% | 19% |
| • stories, fiction | 15% | 11% |

*Observations:*

- A higher percentage of female students than male students said they read and write outside school for three or more hours a week.
- The majority of students said that they do not read outside school for more than three hours a week (61% of females and 69% of males). This was also true of writing: the majority of students responded that they do not write for more than three hours a week (67% of females and 75% of males).
- The majority of females indicated that they read magazines; Internet material; and novels, fiction or short stories outside school most weeks. The majority of males indicated they read Internet material and magazines.

- The majority of females responded that they write e-mail or chat-room messages and letters, journals or diaries; the majority of males said they write e-mail or chat-room messages.
- A slightly higher number of male students than female students indicated they read comics and newspapers; more males than females said they read manuals and instructions.
- A higher percentage of female students than male students read letters; poetry or song lyrics; and novels, fiction or short stories.
- Many more female students than male students reported that they write letters, journals or diaries, notes, directions or instructions, and song lyrics or poems.

## Relationships Among the Data

EQAO released its first Education Quality Indicators Program (EQUIP) report in December 2001. This was followed by a summary report of 2001 EQUIP survey data in March 2002. Together these reports provide information about education quality issues and the learning environment. In all, 13 educational indicators are reported at the secondary level and are taken from a variety of different sources, including Statistics Canada, the Ministry of Education and EQAO. EQUIP data provide contextual and other information that helps parents, members of the education community and the public examine and better understand student achievement results. For more information about EQUIP, please refer to the EQAO Web site (www.eqao.com).

For this report on the OSSLT results, various statistical measures were used to examine the relationships among the data; however, the findings were highly consistent regardless of the statistical method used. (Refer to the OSSLT technical paper on the EQAO Web site for a complete list and description of these measures, as well as a description of the statistical analyses that were performed and the relationships that were discovered among the measures.)

The main findings of these analyses were that

- all five measures of achievement (percentage of students passing both reading and writing, percentage of students passing reading only, percentage of students passing writing only, average writing score, average reading score) were strongly related to each other.
- many EQUIP indicator variables (e.g., school enrolment, home neighbourhood measures and school survey results) were significantly related to achievement.

The strongest positive relationships with achievement were

- access to a home computer
- average household income
- average household educational attainment
- total school enrolment
- average stakeholder rating on school safety: Stakeholders (e.g., parents, school council members, teachers, school administrators and support staff) were asked to respond on a scale of one (lowest) to five (highest) to statements such as "There is very little physical fighting at school," "There is very

little cutting of classes or skipping of school," "There is very little stealing at school," "There is very little verbal abuse at school" and "There is very little harassment at school."

- average student rating on school safety: Students were asked to respond on a scale of one (lowest) to five (highest) to questions and statements such as "How often do you feel safe while in your school," "There is very little physical fighting at school," "There is very little discrimination at school" and "There is very little harassment at school."

- average respondent rating on a few leadership measures: Stakeholders (e.g., parents on school councils, teachers, school administrators and support staff) were asked to respond on a scale of one (lowest) to five (highest) to statements such as "High expectations for staff are part of the school's climate," "Classroom practices reflect the school's mission" and "The work of the school council is actively supported within the school."

The above findings mean that the higher the measures on the above variables, the higher the achievement scores tend to be. Thus in schools where many students reported having access to a home computer, where the average household income was relatively high, where many stakeholders believed there was little physical fighting, little cutting of classes or skipping of school, where many students reported feeling safe while in school and where there was little discrimination at school, the achievement scores tended to be higher.

## Specific Recommendations

### Planning for Improvement

*EQAO recommends*

- that **school boards,** in consultation with their school communities, and using the EQAO *Guide to School and Board Improvement Planning,* incorporate the overall and specific data from the February 2002 OSSLT into their existing board and school improvement plans for developing student literacy. Boards should implement strategies for improving student achievement in reading and writing that extend across
the elementary and secondary grades and across all subject areas.

- that **schools,** in consultation with their communities, incorporate the overall and specific data from the February 2002 OSSLT into their existing school literacy improvement plans and develop curriculum-wide strategies for improving student achievement in reading and writing.

### Relevance and Student Motivation

*EQAO recommends*

- that the **Ministry, school boards, principals and teachers,** in partnership with students, parents and school councils, take further steps to help students understand the relevance of literacy to learning in all subject areas, and the importance of literacy skills to future educational and career opportunities, and in everyday life outside school.

- that **EQAO** provide information for parents about the reading and writing skills required for successful completion of the OSSLT and encourage parents to assist students in understanding the relevance and importance of literacy skills.

- that **parents** enhance their own understanding of the reading and writing skills required for successful completion of the OSSLT and assist students in understanding the relevance and importance of literacy skills to future educational and career opportunities, and in everyday life outside school.

- that the **Ministry, school boards, principals and teachers,** recognizing the strong connection between literacy and the use of technology, develop strategies students can use in school and at home when using computers, that will enhance student achievement in reading and writing (e.g., thoughtful use of spell- and style-checkers and the use of the "Find" function to track significant words in a reading selection).

## Reading

*EQAO recommends*

- that **principals and teachers,** in consultation with students, parents and school councils, review the Student Questionnaire data for students in their school and determine how students' home reading, especially in the area of information texts, can be used to encourage students to develop more effective reading strategies, increased reading comprehension and a greater enjoyment of reading.

- that **school boards and schools** carefully study the data on reading strategies to determine whether students in their jurisdiction are having particular difficulty with reading questions related to vocabulary, syntax, organization and/or graphic features, and have teachers in all subject areas assist students in developing an understanding of how these strategies are used to increase reading comprehension.

- that **school boards, principals and teachers,** in consultation with students, parents and school councils, examine the data on reading and writing achievement in order to identify subjects and/or courses where additional emphasis on reading and writing skills is required.

- that the **Ministry and school boards** extend the reading development strategies in Ontario's Early Reading Strategy across all grades (e.g., availability of remedial programs, reading expertise in each school and a variety of reading materials to all students).

- that **school boards** access available funding from the Ministry to develop and provide remedial literacy programs that help students improve their reading and writing skills.

## Writing

*EQAO recommends*

- that **teachers,** in consultation with students and parents, use the Annotated Student Responses on the EQAO Web site to help students understand the characteristics of successful writing, so that they can strengthen their knowledge and skills related to the quality of writing required for success on the OSSLT.

- that **schools and school boards** pay particular attention to strategies that will motivate and assist students who are currently unsuccessful in the writing component of the OSSLT.

- that **schools and school boards** pay particular attention to strategies that will motivate and assist students in strengthening their knowledge and skills related to writing summaries.

## Support for Teachers

*EQAO recommends*

- that the **Ontario College of Teachers** include a compulsory course on reading skill acquisition and development as a requirement of the Professional Learning Program. Boards and schools should be encouraged to offer professional development opportunities for teachers in the area of literacy instruction.

- that **teachers** be encouraged to use the Support Materials, Annotated Student Responses, Example Test Booklet and the Getting Ready Guide available on EQAO's Web site to help students prepare to write the OSSLT successfully (e.g., to understand the format of the test, the number and kinds of reading questions and writing tasks, the time constraints, the need to respond to all reading questions and writing tasks, the need to write on the topic and to follow the instructions provided for all writing tasks, and how the test is marked).

## Diverse Student Populations

*EQAO recommends*

- that **school boards, principals and teachers** examine the teacher and student questionnaire data for applied courses and ensure that the strategies and resources being used to teach and assess these courses appropriately reflect their focus, the provincial curriculum expectations for applied courses and the needs and motivation of students in courses at this level, with emphasis on the reading and writing skills measured on the OSSLT.

- that **school boards, principals and teachers,** in consultation with students, parents and school councils review the achievement and questionnaire data for applied and academic courses and determine what additional steps need to be taken in order to increase the percentage of students reaching the provincial standard in reading and writing on the OSSLT.

- that **school boards,** in consultation with parents, students and school councils, monitor the achievement of ESL/ELD students on the OSSLT and implement a variety of strategies for assisting students in these programs to be successful on the OSSLT and ensure that these students have a maximum number of opportunities to participate in the OSSLT.

- that **school boards,** in consultation with parents, students and school councils, monitor the achievement of students in special education courses on the OSSLT and implement a variety of strategies for assisting students in these programs to be successful on the OSSLT.

## School Climate

*EQAO recommends*

- that **school boards, principals and teachers,** in partnership with students, parents and school councils, promote feelings of safety and security in the school, recognizing that such a climate makes students better able to benefit from classroom instruction, which in turn has a positive impact on student achievement.

## Appendix A — Marking and Reliability Procedures

The following quality control and reliability procedures are built into all parts of the marking process to ensure high levels of consistency in the marking of students' work:

a) ***Chain marking method:*** For both the reading and writing components, different markers mark specific booklets or parts of a student's work. For the February 2002 OSSLT, four different markers were assigned to mark one of the reading parts each, and four different markers were assigned to mark one of the four writing tasks each. This assures greater consistency in marking than using a single marker for all of a student's work or each of the components. (Refer to *The Ontario Secondary School Literacy Test Resource Guide, 2000–2001.)*

b) ***Training papers:*** Each day during marking, training papers are marked and discussed by all markers working on a particular writing task or set of reading questions. The training papers are carefully selected to reflect various complexities of student responses. This ensures that markers are confident in using the scoring rubrics and do so consistently throughout the marking session on all types of student responses.

c) ***Group marking papers:*** Every afternoon during marking, a common paper is marked by all markers working with a particular writing task or set of reading questions. The data from this exercise are analyzed to determine the level of consistency across the marking site as well as within the groups. Where low levels of consistency (i.e., less than 80% exact agreement) are identified, additional group and site training is provided.

d) ***Blind reinsertions:*** A number of student papers are randomly pre-selected and reinserted into the marking flow to receive a second set of marks. The scores derived from the first marking and those derived from the second marking are then correlated to derive an index of marker consistency, in a procedure similar to the one used in the Grade 10 Washington Assessment of Student Learning (Taylor, 2001). Correlation analyses for the reinsertion papers, by component and within language programs, show that the inter-rater reliability coefficients are over 0.80. For reading, the inter-rater reliability coefficient was 0.92 for English (# = 4425). For writing, the inter-rater reliability coefficient was 0.85 for English (# = 4442). "Typically, reliability coefficients for large-scale assessments…should be at least in the mid to high 0.80s." (Refer to the Arizona's Instrument to Measure Standards (AIMS) *Guide to Understanding AIMS Results.*) Thus, these results are in keeping with the standards expected concerning reliability in large-scale assessments, namely that student responses be scored consistently and the scoring rubrics be applied in a uniform manner.

e) ***Double marking:*** All student papers close to the pass score are routed back for a second (blind) marking. This procedure ensures that students' papers are appropriately scored and allows for a better determination of the accuracy of results around the pass score. All marks for students' papers near the pass score are reviewed during the marking process. (Refer to *The Ontario Secondary School Literacy Test Resource Guide, 2000–2001* for a more detailed description of this two-phase marking process for the reading and writing components.)

# Appendix B — Provincial Results, October 2000 Trial Administration of the Ontario Secondary School Literacy Test

Displayed below are the results from the October 2000 trial administration. The primary purpose of the trial administration was to refine procedures at all levels. The October 2000 conditions for test administration and the data analyses and reporting formats differ from those for February 2002. For these reasons, any comparison of results should be made with caution. This information does indicate some patterns of improvement between the two administrations of the OSSLT.

| **Participation Summary:** | | | |
|---|---|---|---|
| | | **Method 1** | **Method 2** |
| Students who wrote the test (both days) | 127046 | 90 % | 100 % |
| Absent one or both days* | 9187 | 7 % | n/a |
| Deferred | 4779 | 3 % | n/a |
| Total Students working towards a diploma | 141012 | 100 % | n/a |
| Exempt | 1089 | n/a | n/a |
| Total Including Exemptions | 142101 | | |
| **Results:** | | | |
| Successfully completed the test** | 86248 | 61 % | 68 % |
| Wrote the test, but were not successful | | | |
| Failed both Reading and Writing | 16609 | 13 % | 15 % |
| Failed Writing and passed Reading | 15154 | 11 % | 12 % |
| Failed Reading and passed Writing | 6945 | 5 % | 5 % |
| | | | 100 % |
| Absent one or both days* | 9187 | 7 % | n/a |
| Deferred | 4779 | 3 % | n/a |
| Total Students working towards a diploma | 141012 | 100 % | n/a |

**Method 1** expresses the number of students as a percentage of all Grade 10 students who are working towards an Ontario Secondary School Diploma including students who were deferred or absent for all or part of the test.

**Method 2** expresses the number of students as a percentage of those Grade 10 students who are working towards an Ontario Secondary School Diploma and who wrote the test, excluding those who were deferred or absent for all or part of the test.

* All students for whom completed booklets were not received are considered absent unless the *Student Information Form (SIF)* indicated that they were either exempt or deferred.

** To successfully complete the test, students must have passed both the reading and writing portions of the test.

### Overall Test Results for School, Board, and Province

| | Did Not Write (includes deferrals) | Failed both Reading and Writing | Failed Reading, Passed Writing | Passed Reading, Failed Writing | Passed both Reading and Writing |
|---|---|---|---|---|---|
| School Results | n/a % | n/a % | n/a % | n/a % | n/a % |
| Board Results | n/a % | n/a % | n/a % | n/a % | n/a % |
| Provincial Results | 10% | 13% | 5% | 11% | 61% |

### Test Results by Gender

| | Did Not Write (includes deferrals) | Failed both Reading and Writing | Failed Reading, Passed Writing | Passed Reading, Failed Writing | Passed both Reading and Writing |
|---|---|---|---|---|---|
| Females | 7% | 10% | 5% | 8% | 70% |
| Males | 9% | 17% | 5% | 13% | 55% |

### Information on Deferrals, Accommodations, and Special Provisions

| | Wrote with Accommodations or Special Provisions | Deferred |
|---|---|---|
| ESL/ELD | 691 | 2284 |
| IEP or IPRC and IEP | 8587 | 1266 |
| Other Reason, or not Specified | 1510 | 1248 |
| Total Students* | 10749 | 4779 |
| Percent of Total Eligible Students | 8 % | 3 % |

* The "Total Students" figure may be smaller than the sum of the previous three rows because some students may be in an ESL or ELD program and also have an IPRC and/or IEP.

### Overall Test Results for School, Board, and Province

| | Did Not Write (includes deferrals) | Failed both Reading and Writing | Failed Reading, Passed Writing | Passed Reading, Failed Writing | Passed both Reading and Writing |
|---|---|---|---|---|---|
| School Results | n/a % | n/a % | n/a % | n/a % | n/a % |
| Board Results | n/a % | n/a % | n/a % | n/a % | n/a % |
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### Gender Breakdown of Eligible (Non-exempt) Students

| | |
|---|---|
| Female | 47% |
| Male | 50% |
| Not specified | 3% |

### Program Enrollment

| | |
|---|---|
| Students enrolled in academic level in Mathematics and/or English | 69% |
| Students enrolled in applied level in both Mathematics and English | 22% |
| Students enrolled in locally developed courses in Mathematics and/or English | 3% |
| Program level not specified | 6% |

## Contextual Information from the Student Questionnaire

Of 141012 eligible students, 125110 (89%) completed a questionnaire.

Note: Percentages in the following tables are of the total completing the questionnaire. These data may represent a somewhat biased view of the overall population of eligible students because, in most cases, absent or deferred students did not complete the questionnaire.

| Percent of students indicating that: | Females | Males |
|---|---|---|
| ·they have a computer in their home | 91% | 91% |
| ·English is the first language that they learned in the home | 79% | 79% |
| ·English is the language spoken most frequently in the home | 79% | 78% |
| ·they were born outside Canada | 17% | 18% |

### Reading and Writing Outside School

| Percent of students indicating that: | Females | Males |
|---|---|---|
| ·they read in English outside of school for three or more hours a week (not counting homework) | 36% | 28% |
| ·they read the following kinds of material outside school most weeks | | |
| - Biographies and other non-fiction books | 20% | 15% |
| - Comics | 28% | 38% |
| - Internet material | 72% | 67% |
| - Letters | 57% | 21% |
| - Magazines | 88% | 70% |
| - Manuals, instructions | 9% | 20% |
| - Newspapers | 46% | 47% |
| - Novels, fiction, short stories | 62% | 39% |
| - Poetry, song lyrics | 46% | 20% |
| - Religious or spiritual readings | 13% | 9% |
| ·they write in English outside of school for three or more hours a week (not counting homework) | 30% | 21% |
| they do the following types of writing outside of school most weeks | | |
| - E-mail messages, chat- room conversations | 79% | 78% |
| - Letters, journals, diaries | 76% | 22% |
| - Notes, directions, instructions | 41% | 31% |
| - Song lyrics, poems | 34% | 18% |
| - Stories, fiction | 18% | 13% |

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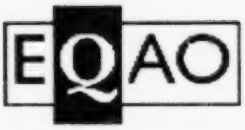
| - Song lyrics, poems | 34% | 18% |
| - Stories, fiction | 18% | 13% |




Education
Quality and
Accountability
Office

# *National and International Assessments*

## Report of Provincial Results

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## Highlights of Achievement Results

### School Achievement Indicators Program (SAIP) Mathematics III Assessment (2001)

- In the two components of the national SAIP Mathematics III Assessment (2001), content and problem-solving, Ontario English-language 13- and 16-year-old students performed as well as Canadian students overall.

- Ontario French-language results in the problem-solving component of the assessment for the 13-year-old students were the same as for Canada overall. In the content component for this age group and in both components of the assessment for 16-year-old Ontario French-language students, the results were lower than those for Canada overall.

- Generally, Ontario English- and French-language 13- and 16-year-old students performed better in 2001 than they did in 1997. The only exceptions were in the content component, in which the English-language 16-year-olds' performance remained about the same, and the French-language 16-year-olds' performance declined.

### Programme for International Student Assessment (PISA) 2000 (Reading)

- Canadian 15-year-old students were part of a cluster of countries near the top in all three domains: reading literacy, mathematical literacy and scientific literacy. Only Finland performed significantly better than Canada in reading; only Korea and Japan in mathematics; and only Finland, Japan and Korea in science.

- Ontario students performed the same as Canada in reading and science but scored slightly lower than Canada in mathematics.

- In all countries, including Canada, girls performed substantially better than boys on the reading test. This same trend was found in Ontario. Canada, France and Germany were the only countries where small gender differences in mathematics were statistically significant.[1] In these countries, the results favoured boys. For science achievement, there were no significant differences between girls and boys in any country or province.

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[1] See Appendix A for a definition of the term "statistical significance."

## Key Messages

- Ontario's 13- and 16-year-old English-language students matched the Canadian average for both the content and the problem-solving components of the SAIP mathematics assessment; the province's 13-year-old French-language students matched the Canadian average in problem-solving. In general, Ontario students performed better on the SAIP mathematics assessment in 2001 than they did in 1997.

- In the PISA assessment, Canadian students were part of a cluster of countries that achieved the highest levels in reading, mathematical and scientific literacy. Ontario students performed at the same level as Canada in reading and science but scored slightly lower than Canada in mathematics. These results indicate that Ontario students perform well compared with their counterparts in most other countries.

## Key Recommendations

The Education Quality and Accountability Office (EQAO) recommends that

- **EQAO** ensure that Ontario schools and school boards are made aware of national and international assessment programs and their potential value at the provincial and local levels;

- **schools and school boards** use the results of national and international assessments as part of their school and board improvement planning;

- **EQAO and the Ministry** encourage and promote research projects in three important areas:

  1. determine why the differences in student achievement persist between the two official language groups and identify steps that could be taken to address this issue;

  2. determine the factors that explain the results of the highest scoring jurisdictions within Canada and internationally and consider whether and how Ontario might apply this information and

  3. analyze the existing rich national and international assessment databases to explore how curriculum, resources, teaching practices, school characteristics, classroom conditions and individual and family characteristics have an impact on student achievement.

# *Introduction*

The purpose of the EQAO is to promote greater accountability in the publicly funded education system in Ontario and to improve the quality of education in the province. In order to fulfill its mandate, EQAO conducts several province-wide assessments and is responsible for managing Ontario's participation in national and international assessments. EQAO's involvement in these projects includes

- attending planning meetings,
- contributing to the underlying project frameworks and blueprints,
- verifying assessment materials for cultural appropriateness and equity,
- verifying translations,
- developing and selecting test items,
- communicating with schools and securing their co-operation,
- conducting pilot and field tests of assessment materials,
- administering the assessments,
- scoring and coding the student responses,
- capturing and preparing data for analysis,
- analyzing provincial data,
- setting expectations for student achievement,
- reporting at the provincial level and
- contributing to reporting at the national and international levels.

# *National Assessments*

At the national level, the province takes part in SAIP, a national testing program conducted under the auspices of the Council of Ministers of Education, Canada (CMEC). This program tests randomly selected samples of 13- and 16-year-old students. Reporting is at the provincial and national levels only. Individual student, school and school board data are unavailable. Ontario/EQAO has been part of every development team since the program began.

Assessments conducted to date or planned for the future are as follows:

| Year | National, SAIP Assessments |
|---|---|
| 1993 | Mathematics |
| 1994 | Reading and Writing |
| 1996 | Science |
| 1997 | Mathematics |
| 1998 | Reading and Writing |
| 1999 | Science |
| 2001 | Mathematics |
| 2002 | Writing |
| 2004 | Science |
| 2005 | Reading |

## Background

In the spring of 2001, the SAIP mathematics assessment was administered to a random sample of students drawn from all Canadian jurisdictions. Approximately 41 000 students from across the country took part in the assessment, including more than 4800 from Ontario. The assessment was conducted both in English and in French, and steps were taken to ensure the results of the two language groups were comparable.

The assessment took two-and-a-half hours to administer and consisted of two main parts. One randomly selected sample of students completed a content component, responding to a series of short-answer and multiple-choice questions; another student sample completed a problem-solving component, in which they were asked to answer extended-response questions about a specific scenario. Each student who participated in the assessment also completed an attitude and background survey. In addition, there was a teacher questionnaire to be filled out by the selected students' mathematics teacher and a school questionnaire that was completed by the principal.

The development team responsible for the 2001 SAIP mathematics assessment included representatives from Saskatchewan, Ontario and Newfoundland and Labrador. The main task of the team was to improve the assessment materials used in 1997, taking into account data and comments

from the earlier test administration. Only a limited amount of change in the test instruments was possible since an important principle of SAIP is to compare student achievement results over time.

SAIP uses five performance levels and reports the percentage of students acquiring knowledge and skills at each level. The same five levels are applied to both 13- and 16-year-old students. The following descriptions of Levels 1 and 5 are taken from the CMEC's public report, which can be viewed at www.cmec.ca. The complete Ontario report on the 2001 SAIP mathematics assessment can be viewed at the EQAO Web site: www.eqao.com.

## Content Assessment

- At Level 1, a student can
  - add, subtract and multiply, using a limited range of natural numbers,
  - use concrete materials and diagrams to represent simple relations,
  - determine linear dimensions of recognizable simple plane figures and
  - read information from very simple tables.
- At Level 5, a student can
  - use the four basic operations with the full range of real numbers,
  - use and graph algebraic expressions with two variables and various functions,
  - use the properties of circles and right-angle triangles and
  - calculate statistical information and the probability of combined events.

## Problem-Solving Assessment

- At Level 1, a student can
  - find single solutions to one-step problems, using obvious algorithms and a limited range of whole numbers and
  - use one case to establish a proof.
- At Level 5, a student can
  - create original algorithms to find solutions to multi-step problems, using the full range of real numbers,
  - construct structured proofs that provide full justification of each step and
  - use mathematical and common vocabulary correctly and provide clear and precise solutions.

National expectations were established for the 2001 SAIP mathematics assessment so that actual achievement results could be compared with expected results. To set these performance expectations, the CMEC held three regional meetings with educators and non-educators in western, central and Atlantic Canada to decide what percentage of 13- and 16-year-old students should achieve results at or above each of the performance levels. The resulting information helped the CMEC and the various Canadian jurisdictions interpret how well students performed on the assessment.

## Curriculum-Test Match

In the 2001 SAIP mathematics assessment, most 13-year-old students were enrolled in either Grade 8 or 9 mathematics, as mathematics is mandatory in both grades in the new curriculum. However, the mathematics experiences of the 16-year-old students would have been more varied. Most of the 16-year-old students in the assessment would have been studying the old mathematics curriculum and taking a Grade 11 course at one of three possible levels of difficulty or would have taken no mathematics course since Grade 10. Some 16-year-old students would have begun the new curriculum in September 1999.

An analysis was conducted to determine the extent to which the content of the items used in the 2001 SAIP mathematics assessment was reflected in Ontario's mathematics curriculum. The following data show the extent to which the assessment was aligned with Ontario's curriculum.

The curriculum-test match for the 13-year-old students was as follows:

Levels 1 and 2 = 96%

Levels 1, 2 and 3 = 88%

Levels 1, 2, 3 and 4 = 77%

Levels 1, 2, 3, 4 and 5 = 67%

Since the expected level of achievement for 13-year-old students was at least Level 2, it can be interpreted that the curriculum-test match for this group of students was very strong.

The curriculum match for the 16-year-old students was as follows:

Levels 1, 2 and 3 = 84%

Levels 1, 2, 3 and 4 = 77%

Levels 1, 2, 3, 4 and 5 = 71%

Since the expected level of achievement for 16-year-old students was at least Level 3, it can be interpreted that the curriculum-test match for this group of students was strong.

It should be noted that while the questions posed on SAIP 2001 align well with *The Ontario Curriculum,* they neither assess achievement on all of the required elements nor place the same emphasis on topics as *The Ontario Curriculum.*

# *Achievement Results*

The following charts indicate how the student achievement results for the provinces and territories (and Canada overall) compare with Ontario (English).[2] The groupings are derived from the proportions of 13-year-old students attaining achievement Level 2 and above and the percentages of 16-year-old students attaining Level 3 and above.

## Provinces and Territories Compared with Ontario (English)

(Percentage of 13-Year-Olds at Level 2 and Above; Percentage of 16-Year-Olds at Level 3 and Above)

*Content Component*

| | Higher Than Ontario | Same As Ontario (English) | Lower Than Ontario (English) |
|---|---|---|---|
| **Age 13** | Alberta 70.6% (±3.0)<br>Quebec (F) 74.9% (±2.9) | British Columbia 60.7% (±2.9)<br>Canada 64.4% (±0.8)<br>Manitoba (E) 57.2% (±3.0)<br>Manitoba (F) 59.2% (±4.0)<br>New Brunswick (F) 57.6% (±3.4)<br>Newfoundland/Labrador 57.1% (±3.7)<br>**Ontario (E) 63.4% (±3.3)**<br>**Ontario (F) 56.3% (±4.3)**<br>Quebec (E) 66.6% (±3.1) | New Brunswick (E) 51.9% (±3.2)<br>Northwest Territories 40.5% (±4.2)<br>Nova Scotia (E) 47.7% (±3.3)<br>Nova Scotia (F) 48.5% (±8.6)<br>Nunavut 8.0% (±2.9)<br>Prince Edward Island 52.7% (±3.8)<br>Saskatchewan 52.1% (±3.1)<br>Yukon 52.5% (±7.0) |
| **Age 16** | Alberta 60.5% (±3.9)<br>Manitoba (F) 63.2% (±4.8) | British Columbia 46.4% (±3.3)<br>Canada 49.7% (±1.0)<br>Manitoba (E) 48.9% (±3.3)<br>New Brunswick (F) 50.6% (±3.6)<br>Nova Scotia (F) 55.7% (±9.5)<br>**Ontario (E) 50.6% (±3.7)**<br>Yukon 44.5% (±7.6) | New Brunswick (E) 42.9% (±3.4)<br>Newfoundland/Labrador 36.0% (±3.7)<br>Northwest Territories 35.9% (±5.9)<br>Nova Scotia (E) 43.2% (±3.5)<br>Nunavut 11.8% (±5.1)<br>**Ontario (F) 41.7% (±4.1)**<br>Prince Edward Island 43.2% (±4.1)<br>Saskatchewan 42.4% (±3.2) |

**Notes:**

- The above groupings take sampling error and confidence intervals into account. Refer to Appendix A for an explanation of these terms.
- Levels 2 and 3 are highlighted because, in designing SAIP, the program developers established the principle that most 13-year-olds should be able to meet the criteria for Level 2, and most 16-year-olds should be able to meet the criteria for Level 3. The complete data set is presented in Appendix B.
- (E) and (F) refer to English and French respectively.
- Confidence intervals (±1.96 times the standard error) are listed between parentheses.

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[2] In the absence of data for Ontario overall, the results for Ontario English-language students were used for comparison purposes. Because of the relative sizes of the English- and French-language populations, statistics for Ontario overall would have been virtually identical to the statistics for Ontario (English).

## Provinces and Territories Compared with Ontario (English)

(Percentage of 13-year-olds at Level 2 and Above; Percentage of 16-year-olds at Level 3 and Above)

*Problem-Solving Component*

| | Higher Than Ontario (English) | Same As Ontario (English) | Lower Than Ontario (English) |
|---|---|---|---|
| **Age 13** | Alberta 76.5% (±2.9) | British Columbia 63.3% (±2.9)<br>Canada 67.6% (±0.9)<br>Manitoba (F) 71.1% (±4.0)<br>New Brunswick (F) 65.5% (±3.6)<br>Nova Scotia (F) 57.8% (±10.6)<br>**Ontario (E) 68. 7% (±3.3)**<br>**Ontario (F) 68.8% (±4.5)**<br>Quebec (E) 69.2% (±3.3)<br>Quebec (F) 71.0% (±3.6)<br>Yukon 63.7% (±7.8) | Manitoba (E) 60.4% (±3.0)<br>New Brunswick (E) 57.9% (±3.3)<br>Newfoundland/Labrador 58.2% (±3.9)<br>Northwest Territories 32.9% (±5.1)<br>Nova Scotia (E) 50.9% (±3.4)<br>Nunavut 2.3% (±2.3)<br>Prince Edward Island 51.8% (±4.2)<br>Saskatchewan 60.8% (±3.2) |
| **Age 16** | Alberta 59.0% (±4.1)<br>Manitoba (F) 59.2% (±5.2) | British Columbia 45.1% (±3.4)<br>Canada 47.1% (±1.1)<br>Manitoba (E) 47.6% (±3.4)<br>New Brunswick (E) 41.8% (±3.5)<br>New Brunswick (F) 53.2% (±4.0)<br>Nova Scotia (E) 40.3% (±3.4)<br>Nova Scotia (F) 49.2% (±12.5)<br>**Ontario (E) 46.5% (±3.9)**<br>**Ontario (F) 38.9% (±4.5)**<br>Prince Edward Island 39.2% (±4.1)<br>Saskatchewan 45.3% (±3.4) | Newfoundland/Labrador 37.4% (±3.9)<br>Northwest Territories 20.0% (±6.9)<br>Nunavut 5.2% (±5.7)<br>Yukon 31.5% (±8.1) |

**Notes:**

- The above groupings take sampling error and confidence intervals into account. Refer to Appendix A for an explanation of these terms.
- Levels 2 and 3 are highlighted because, in designing SAIP, the program developers established the principle that most 13-year-olds should be able to meet the criteria for Level 2, and most 16-year-olds should be able to meet the criteria for Level 3. The complete data set is presented in Appendix B.
- (E) and (F) refer to English and French respectively.
- Confidence intervals (±1.96 times the standard error) are listed between parentheses.

The following charts indicate how the student achievement results of the provinces and territories compare with Canada overall. The charts show the proportions of 13-year-old students attaining achievement Level 2 and above, and the proportion of 16-year-olds attaining achievement Level 3 and above.

## Provinces and Territories Compared with Canada Overall

(Percentage of 13-Year-Olds at Level 2 and Above; Percentage of 16-Year-Olds at Level 3 and Above)

*Content Component*

| | Higher Than Canada | Same As Canada | Lower Than Canada |
|---|---|---|---|
| **Age 13** | Alberta 70.6% (±3.0)<br>Quebec (F) 74.9% (±2.9) | British Columbia 60.7% (±2.9)<br>Canada 64.4% (±0.8)<br>**Ontario (E) 63.4% (±3.3)**<br>Quebec (E) 66.6% (±3.1) | Manitoba (E) 57.2% (±3.0)<br>Manitoba (F) 59.2% (±4.0)<br>New Brunswick (E) 51.9% (±3.2)<br>New Brunswick (F) 57.6% (±3.4)<br>Newfoundland/Labrador 57.1% (±3.7)<br>Northwest Territories 40.5% (±4.2)<br>Nova Scotia (E) 47.7% (±3.3)<br>Nova Scotia (F) 48.5% (±8.6)<br>Nunavut 8.0% (±2.9)<br>**Ontario (F) 56.3% (±4.3)**<br>Prince Edward Island 52.7% (±3.8)<br>Saskatchewan 52.1% (±3.1)<br>Yukon 52.5% (±7.0) |
| **Age 16** | Alberta 60.5% (±3.9)<br>Manitoba (F) 63.2% (±4.8) | British Columbia 46.4% (±3.3)<br>Canada 49.7% (±1.0)<br>Manitoba (E) 48.9% (±3.3)<br>New Brunswick (F) 50.6% (±3.6)<br>Nova Scotia (F) 55.7% (±9.5)<br>**Ontario (E) 50.6% (±3.7)**<br>Yukon 44.5% (±7.6) | New Brunswick (E) 42.9% (±3.4)<br>Newfoundland/Labrador 36.0% (±3.7)<br>Northwest Territories 35.9% (±5.9)<br>Nova Scotia (E) 43.2% (±3.5)<br>Nunavut 11.8% (±5.1)<br>**Ontario (F) 41.7% (±4.1)**<br>Prince Edward Island 43.2% (±4.1)<br>Saskatchewan 42.4% (±3.2) |

**Notes:**

- The above groupings take sampling error and confidence intervals into account. Refer to Appendix A for an explanation of these terms.
- Levels 2 and 3 are highlighted because, in designing SAIP, the program developers established the principle that most 13-year-olds should be able to meet the criteria for Level 2, and most 16-year-olds should be able to meet the criteria for Level 3. The complete data set is presented in Appendix B.
- (E) and (F) refer to English and French respectively.
- Confidence intervals (±1.96 times the standard error) are listed between parentheses.

## Provinces and Territories Compared with Canada Overall

(Percentage of 13-Year-Olds at Level 2 and Above; Percentage of 16-Year-Olds at Level 3 and Above)

*Problem-Solving Component*

| | Higher Than Canada | Same As Canada | Lower Than Canada |
|---|---|---|---|
| **Age 13** | Alberta 76.5% (±2.9) | Canada 67.6% (±1.0)<br>Manitoba (F) 71.1% (±4.0)<br>New Brunswick (F) 65.5% (±3.6)<br>Nova Scotia (F) 57.8% (±10.6)<br>**Ontario (E) 68.7% (±3.3)**<br>**Ontario (F) 68.8% (±4.5)**<br>Quebec (E) 69.2% (±3.3)<br>Quebec (F) 71.0% (±3.6)<br>Yukon 63.7% (±7.8) | British Columbia 63.3% (±2.9)<br>Manitoba (E) 60.4% (±3.0)<br>New Brunswick (E) 57.9% (±3.3)<br>Newfoundland/Labrador 58.2% (±3.9)<br>Northwest Territories 32.9% (±5.1)<br>Nova Scotia (E) 50.9% (±3.4)<br>Nunavut 2.3% (±2.3)<br>Prince Edward Island 51.8% (±4.2)<br>Saskatchewan 60.8% (±3.2) |
| **Age 16** | Alberta 59.0% (±4.1)<br>Manitoba (F) 59.2% (±5.2)<br>New Brunswick (F) 53.2% (±4.0) | British Columbia 45.1% (±3.4)<br>Canada 47.1% (±1.1)<br>Manitoba (E) 47.6% (±3.4)<br>Nova Scotia (F) 49.2% (±12.5)<br>**Ontario (E) 46.5% (±3.9)**<br>Saskatchewan 45.3% (±3.4) | New Brunswick (E) 41.8% (±3.5)<br>Newfoundland/Labrador 37.4% (±3.9)<br>Northwest Territories 20.0% (±6.9)<br>Nova Scotia (E) 40.3% (±3.4)<br>Nunavut 5.2% (±5.7)<br>**Ontario (F) 38.9% (±4.5)**<br>Prince Edward Island 39.2% (±4.1)<br>Yukon 31.5% (±8.1) |

**Notes:**

- The above groupings take sampling error and confidence intervals into account. Refer to Appendix A for an explanation of these terms.
- Levels 2 and 3 are highlighted because, in designing SAIP, the program developers established the principle that most 13-year-olds should be able to meet the criteria for Level 2, and most 16-year-olds should be able to meet the criteria for Level 3. The complete data set is presented in Appendix B.
- (E) and (F) refer to English and French respectively.
- Confidence intervals (±1.96 times the standard error) are listed between parentheses.

## Observations

- In the content and the problem-solving components of the assessment, Ontario (English) 13- and 16-year-old students performed as well as Canadian students overall.
- Ontario (French) results in the problem-solving component for the 13-year-old students were the same as for Canada overall. In the other components, Ontario (French) students' results were lower than those for Canada overall.
- In 2001, the Ontario (French) 13-year-olds performed significantly better at Level 2 and above for the content component than they did in 1997. The 2001 results of the 16-year-old French students were lower than in 1997.
- The 2001 scores of both the 13- and 16-year-old French-language students in problem solving were better (at Level 2 and above and Level 3 and above respectively) than in 1997.
- In 2001, the Ontario (English) 13-year-old students performed significantly better at Level 2 and above for the content component than they did in 1997. The 2001 performance of the 16-year-old students was unchanged from 1997.
- The 2001 performance of the 13-year-old English-language students in the problem-solving component was significantly better at Level 2 and above than in 1997. The same can be said for 16-year-old students at Level 3 and above.
- There were no statistically significant differences in the percentage of students performing at or above most levels between the Ontario English- and French-language 13- and 16-year-old students for both components of the assessment. The only exception is that a significantly greater percentage of 16-year-old English-language students performed at Level 3 and above in the content component.

# *International Assessments*

At the international level, Ontario has participated and/or is participating in a variety of assessments, including the International Association for the Evaluation of Educational Achievement's Trends in Mathematics and Science Study (TIMSS 1995, 1999 and 2003), the Second Information Technology in Education Study (1998 and 2001) and the Progress in International Reading Literacy Study (2001), as well as the Organisation for Economic Co-operation and Development's (OECD's) PISA 2000 (reading) and 2003 (mathematics).

These assessments test randomly selected samples of students at different ages and grades depending upon the study. As a result, reporting is at the provincial, national and international levels only. Individual student, school and school board data are unavailable.

## PISA 2001 (Reading)

### Background

PISA is an OECD-initiated project designed to provide international indicators of the skills and knowledge of 15-year-old students. PISA aims to assess the degree to which students approaching the end of their compulsory education have acquired the knowledge and skills essential for full participation in society. Three PISA cycles have been planned, each focusing on a different literacy domain: reading literacy (2000), mathematical literacy (2003) and scientific literacy (2006).

#### Participants

The following thirty-two countries participated in PISA 2000. In most countries, between 4500 and 10 000 15-year-olds participated.

| | | |
|---|---|---|
| Australia | Hungary | New Zealand |
| Austria | Iceland | Norway |
| Belgium | Ireland | Poland |
| Brazil | Italy | Portugal |
| Canada | Japan | Russian Federation |
| Czech Republic | Korea | Spain |
| Denmark | Latvia | Sweden |
| Finland | Liechtenstein | Switzerland |
| France | Luxembourg | United Kingdom |
| Germany | Mexico | United States |
| Greece | The Netherlands | |

## The Canadian and Ontarian Contexts

In April and May 2000, approximately 30 000 15-year-old students from more than 1000 Canadian schools participated in PISA 2000. A large Canadian sample was drawn so estimates could be provided at both the national and provincial levels. The Ontario contingent consisted of approximately 4000 students. Sufficient data were collected from both official language groups in Manitoba, Ontario, Quebec, New Brunswick and Nova Scotia to provide information on the achievement of Canadian students by school-system language. The complete Ontario report of the 2000 PISA assessment can be viewed at the EQAO Web site: www.eqao.com.

## Data Sources

The 2000 PISA survey included a two-hour student skills assessment in the form of reading, mathematics and science tests. Students completed a 20-minute questionnaire that provided background information on factors contributing to student achievement. A three-minute questionnaire focusing on information technology was also administered to students. Finally, PISA 2000 included a school questionnaire administered to school principals that collected information about characteristics of the school.

In addition to the PISA assessment, a 30-minute contextual survey was administered to students to collect more information on their school experiences, their work activities and their relationships with others. A Statistics Canada employee also conducted a 30-minute interview with a parent of each youth involved in PISA 2000.

## Reporting Scales

Student performance was expressed as a score on a scale of 0 to 1000 so that the average score for students in all participating OECD countries was 500 and the standard deviation was 100. This means that, internationally, about two-thirds of the students scored between 400 and 600 on the scale.

In addition, reading achievement was reported using five levels linked to specific score ranges on the original scale.

## Reading Literacy in PISA

PISA defines reading literacy as "understanding, using and reflecting on written texts, in order to achieve one's goal, to develop one's knowledge and potential, and to participate in society."

In this assessment, PISA has introduced an "active" element — "the capacity not just to understand a text but to reflect on it, drawing on one's own thoughts and experiences."

Reading literacy is assessed in relation to

- the form of reading material or text;
- the type of reading task and
- the use for which the text was constructed.

### Test Structure

The 2000 assessment focused mainly on reading, with the reading test providing achievement information on three sub-skills: "retrieving information," " interpreting" and "reflecting." The test contained both multiple-choice items (55% of the assessment) and items requiring students to construct a response (45%). In the latter category, 65% of the tasks required reflection on content and form, and 35% required students to form broad understandings, retrieve information and develop interpretations.

### Five Levels of Reading Proficiency

The following are brief summaries of the PISA reading proficiency levels:

- **Level 1 (lowest level)**

  The student must identify explicit and concrete information in a short text.

- **Level 2**

  The student must identify information that is fairly concrete and make low-level text-based inferences.

- **Level 3**

  The student must identify conditional information and make literal, synonymous or low-level inferences.

- **Level 4**

  The student must not only identify abstract concepts and processes, including reason, evidence, explanation, causation, result, comparison and contrast, but must cycle and integrate these.

- **Level 5 (highest level)**

  The student must not only identify quite abstract information, including contrast, equivalence and theme (summary), but must cycle, integrate and generate them.

The test also had mathematics and science components; however, since the number of test items was relatively small, each of these subject areas was reported with a single score.

## Ontario Curriculum Match

A comparison of PISA (2000) test items with the Ontario Grade 10 academic and applied curricula indicates that there is a close curriculum-to-test match. The PISA reading test items reflect the general categories of content found in the Ontario Grade 10 curriculum. A few items reflect Grade 9 or Grade 11 curriculum. Some elements of *The Ontario Curriculum* are not directly assessed in PISA. PISA items that assess reading abilities pertaining to formal genres (novels, poetry) and the study of stylistic effects are more strongly reflected in the academic level of *The Ontario Curriculum.* The reading of non-continuous texts (charts and graphs) and more practical texts appears in the Grade 9 applied-level curriculum and are not specifically mentioned in the academic.

# *Achievement Results*

The following charts provide information about 15-year-old students' achievement in reading, mathematics and science. The PISA results for the participating countries and for Canada's provinces are compared with Canada's national results; the charts show the jurisdictions that scored the same as, higher than and lower than Canada. Within these categories, jurisdictions are listed in alphabetical order.

## Countries' and Provinces' Overall Reading Achievement Compared to Canada's

| Higher Than Canada | | Same As Canada | | Lower Than Canada | |
|---|---|---|---|---|---|
| Alberta | 550 (±3.3) | Australia | 528 (±3.5) | Austria | 507 (±2.4) |
| Finland | 546 (±2.6) | British Columbia | 538 (±2.9) | Belgium | 507 (±3.6) |
| | | Canada | 534 (±1.6) | Brazil | 396 (±3.1) |
| | | Ireland | 527 (±3.2) | Czech Republic | 492 (±2.4) |
| | | Japan | 522 (±5.2) | Denmark | 497 (±2.4) |
| | | Manitoba | 529 (±3.5) | France | 505 (±2.7) |
| | | New Zealand | 529 (±2.8) | Germany | 484 (±2.5) |
| | | **Ontario** | **533 (±3.3)** | Greece | 474 (±5.0) |
| | | Quebec | 536 (±3.0) | Hungary | 480 (±4.0) |
| | | Saskatchewan | 529 (±2.7) | Iceland | 507 (±1.5) |
| | | | | Italy | 487 (±2.9) |
| | | | | Korea | 525 (±2.4) |
| | | | | Latvia | 458 (±5.3) |
| | | | | Liechtenstein | 483 (±4.1) |
| | | | | Luxembourg | 441 (±1.6) |
| | | | | Mexico | 422 (±3.3) |
| | | | | New Brunswick | 501 (±1.8) |
| | | | | Newfoundland | 517 (±2.8) |
| | | | | Norway | 505 (±2.8) |
| | | | | Nova Scotia | 521 (±2.3) |
| | | | | Poland | 479 (±4.5) |
| | | | | Portugal | 470 (±4.5) |
| | | | | Prince Edward Island | 517 (±2.4) |
| | | | | Russian Federation | 462 (±4.2) |
| | | | | Spain | 493 (±2.7) |
| | | | | Sweden | 516 (±2.2) |
| | | | | Switzerland | 494 (±4.2) |
| | | | | United Kingdom | 523 (±2.6) |
| | | | | United States | 504 (±7.0) |

**Notes:**

- The above groupings take standard error and confidence intervals into account. Refer to Appendix A for an explanation of the terms "sampling/standard error," "statistical significance" and "confidence interval."
- The achievement scale scores and standard error statistics in the above chart are rounded figures.
- The international mean score is 500.
- Standard error statistics are presented between parentheses.

## Countries' and Provinces' Reading Achievement, by Sub-Test Score, Compared to Canada's

*Reading, Retrieving*

| Higher Than Canada | | Same As Canada | | Lower Than Canada | |
|---|---|---|---|---|---|
| Alberta | 549 (±3.5) | Australia | 536 (±3.7) | Austria | 502 (±2.3) |
| Finland | 556 (±2.8) | British Columbia | 535 (±3.1) | Belgium | 515 (±3.9) |
| | | Canada | 530 (±1.7) | Brazil | 365 (±3.4) |
| | | Ireland | 524 (±3.3) | Czech Republic | 481 (±2.7) |
| | | Japan | 526 (±5.5) | Denmark | 498 (±2.8) |
| | | Korea | 530 (±2.5) | France | 515 (±3.0) |
| | | Manitoba | 527 (±3.6) | Germany | 483 (±2.4) |
| | | Ontario | 528 (±3.5) | Greece | 450 (±5.4) |
| | | New Zealand | 535 (±2.8) | Hungary | 478 (±4.4) |
| | | Quebec | 531 (±3.2) | Iceland | 500 (±1.6) |
| | | Saskatchewan | 527 (±2.7) | Italy | 488 (±3.1) |
| | | United Kingdom | 523 (±2.5) | Latvia | 451 (±5.7) |
| | | | | Liechtenstein | 492 (±4.9) |
| | | | | Luxembourg | 433 (±1.6) |
| | | | | Mexico | 402 (±3.9) |
| | | | | New Brunswick | 494 (±1.8) |
| | | | | Newfoundland | 512 (±2.9) |
| | | | | Norway | 505 (±2.9) |
| | | | | Nova Scotia | 516 (±2.7) |
| | | | | Poland | 475 (±5.0) |
| | | | | Portugal | 455 (±4.9) |
| | | | | Prince Edward Island | 512 (±2.8) |
| | | | | Russian Federation | 451 (±4.9) |
| | | | | Spain | 483 (±3.0) |
| | | | | Sweden | 516 (±2.4) |
| | | | | Switzerland | 498 (±4.4) |
| | | | | United States | 499 (±7.4) |

**Notes:**

- The above groupings take standard error and confidence intervals into account. Refer to Appendix A for an explanation of the terms "sampling/standard error," "statistical significance" and "confidence interval."
- The achievement scale scores and standard error statistics in the above chart are rounded figures.
- The international mean score is 500.
- Standard error statistics are presented between parentheses.

## Countries' and Provinces' Reading Achievement, by Sub-Test Score, Compared to Canada's (Continued)

*Reading, Interpreting*

| Higher Than Canada | | Same As Canada | | Lower Than Canada | |
|---|---|---|---|---|---|
| Alberta | 546 (±3.3) | Australia | 527 (±3.5) | Austria | 508 (±2.4) |
| Finland | 555 (±2.9) | British Columbia | 534 (±2.8) | Belgium | 512 (±3.2) |
| | | Canada | 532 (±1.6) | Brazil | 400 (±3.0) |
| | | Ireland | 526 (±3.3) | Czech Republic | 500 (±2.4) |
| | | Korea | 525 (±2.3) | Denmark | 494 (±2.4) |
| | | Manitoba | 526 (±3.3) | France | 506 (±2.7) |
| | | New Zealand | 526 (±2.7) | Germany | 488 (±2.5) |
| | | **Ontario** | **529 (±3.3)** | Greece | 475 (±4.5) |
| | | Quebec | 538 (±3.0) | Hungary | 480 (±3.8) |
| | | Saskatchewan | 525 (±2.6) | Iceland | 514 (±1.4) |
| | | | | Italy | 489 (±2.6) |
| | | | | Latvia | 459 (±4.9) |
| | | | | Liechtenstein | 484 (±4.5) |
| | | | | Luxembourg | 446 (±1.6) |
| | | | | Japan | 518 (±5.0) |
| | | | | Mexico | 419 (±2.9) |
| | | | | New Brunswick | 500 (±1.7) |
| | | | | Newfoundland | 512 (±2.7) |
| | | | | Norway | 505 (±2.8) |
| | | | | Nova Scotia | 517 (±2.4) |
| | | | | Poland | 482 (±4.3) |
| | | | | Portugal | 473 (±4.3) |
| | | | | Prince Edward Island | 513 (±2.5) |
| | | | | Russian Federation | 468 (±4.0) |
| | | | | Spain | 491 (±2.6) |
| | | | | Sweden | 522 (±2.1) |
| | | | | Switzerland | 496 (±4.2) |
| | | | | United Kingdom | 514 (±2.5) |
| | | | | United States | 505 (±7.1) |

Notes:

- The above groupings take standard error and confidence intervals into account. Refer to Appendix A for an explanation of the terms "sampling/standard error," "statistical significance" and "confidence interval."
- The achievement scale scores and standard error statistics in the above chart are rounded figures.
- The international mean score is 500.
- Standard error statistics are presented between parentheses.

## Countries' and Provinces' Reading Achievement, by Sub-Test Score, Compared to Canada's (Continued)

*Reading, Reflecting*

| Higher Than Canada | | Same As Canada | | Lower Than Canada | |
|---|---|---|---|---|---|
| Alberta | 559 (±3.5) | **British Columbia** | **547 (±2.8)** | Australia | 526 (±3.4) |
| | | Canada | 542 (±1.6) | Austria | 512 (±2.7) |
| | | Ireland | 533 (±3.1) | Belgium | 497 (±4.3) |
| | | Manitoba | 539 (±3.3) | Brazil | 417 (±3.3) |
| | | **Ontario** | **544 (±3.2)** | Czech Republic | 485 (±2.6) |
| | | Quebec | 537 (±3.1) | Denmark | 500 (±2.6) |
| | | Saskatchewan | 539 (±2.6) | Finland | 533 (±2.7) |
| | | United Kingdom | 539 (±2.5) | France | 496 (±2.9) |
| | | | | Germany | 478 (±2.9) |
| | | | | Greece | 495 (±5.6) |
| | | | | Hungary | 481 (±4.3) |
| | | | | Iceland | 501 (±1.3) |
| | | | | Italy | 483 (±3.1) |
| | | | | Japan | 530 (±5.4) |
| | | | | Korea | 526 (±2.6) |
| | | | | Latvia | 458 (±5.3) |
| | | | | Liechtenstein | 468 (±5.7) |
| | | | | Luxembourg | 442 (±1.9) |
| | | | | Mexico | 446 (±3.7) |
| | | | | New Brunswick | 510 (±1.9) |
| | | | | New Zealand | 529 (±2.9) |
| | | | | Newfoundland | 529 (±2.6) |
| | | | | Nova Scotia | 533 (±2.4) |
| | | | | Norway | 506 (±3.0) |
| | | | | Poland | 477 (±4.7) |
| | | | | Portugal | 480 (±4.5) |
| | | | | Prince Edward Island | 528 (±2.5) |
| | | | | Russian Federation | 455 (±4.0) |
| | | | | Spain | 506 (±2.8) |
| | | | | Sweden | 510 (±2.3) |
| | | | | Switzerland | 488 (±4.8) |
| | | | | United States | 507 (±7.1) |

**Notes:**

- The above groupings take standard error and confidence intervals into account. Refer to Appendix A for an explanation of the terms "sampling/standard error," "statistical significance" and "confidence interval."
- The achievement scale scores and standard error statistics in the above chart are rounded figures.
- The international mean score is 500.
- Standard error statistics are presented between parentheses.

## Countries' and Provinces' Mathematics Achievement Compared to Canada's

| Higher Than Canada | | Same As Canada | | Lower Than Canada | |
|---|---|---|---|---|---|
| Alberta | 547 (±3.3) | Australia | 533 (±3.5) | Austria | 515 (±2.5) |
| Japan | 557 (±5.5) | British Columbia | 534 (±2.8) | Belgium | 520 (±3.9) |
| Quebec | 550 (±2.7) | Canada | 533 (±1.4) | Brazil | 334 (±3.7) |
| Korea | 547 (±2.8) | Finland | 536 (±2.1) | Czech Republic | 498 (±2.8) |
| | | Manitoba | 533 (±3.7) | Denmark | 514 (±2.4) |
| | | New Zealand | 537 (±3.1) | France | 517 (±2.7) |
| | | Saskatchewan | 525 (±2.9) | Germany | 490 (±2.5) |
| | | Switzerland | 529 (±4.4) | Greece | 447 (±5.6) |
| | | United Kingdom | 529 (±2.5) | Hungary | 488 (±4.0) |
| | | | | Iceland | 514 (±2.3) |
| | | | | Ireland | 503 (±2.7) |
| | | | | Italy | 457 (±2.9) |
| | | | | Latvia | 463 (±4.5) |
| | | | | Liechtenstein | 514 (±7.0) |
| | | | | Luxembourg | 446 (±2.0) |
| | | | | Mexico | 387 (±3.4) |
| | | | | New Brunswick | 506 (±2.2) |
| | | | | Newfoundland | 509 (±3.0) |
| | | | | Norway | 499 (±2.8) |
| | | | | Nova Scotia | 513 (±2.8) |
| | | | | **Ontario** | **524 (±2.9)** |
| | | | | Poland | 470 (±5.5) |
| | | | | Portugal | 454 (±4.1) |
| | | | | Prince Edward Island | 512 (±3.7) |
| | | | | Russian Federation | 478 (±5.5) |
| | | | | Spain | 476 (±3.1) |
| | | | | Sweden | 510 (±2.5) |
| | | | | United States | 493 (±7.6) |

**Notes:**

- The above groupings take standard error and confidence intervals into account. Refer to Appendix A for an explanation of the terms "sampling/standard error," "statistical significance" and "confidence interval."
- The achievement scale scores and standard error statistics in the above chart are rounded figures.
- The international mean score is 500.
- Standard error statistics are presented between parentheses.

## Countries' and Provinces' Science Achievement Compared to Canada's

| Higher Than Canada | | Same As Canada | | Lower Than Canada | |
|---|---|---|---|---|---|
| Alberta | 546 (±3.5) | Australia | 528 (±3.5) | Austria | 519 (±2.5) |
| Finland | 538 (±2.5) | British Columbia | 533 (±3.2) | Belgium | 496 (±4.3) |
| Japan | 550 (±5.5) | Canada | 529 (±1.6) | Brazil | 375 (±3.3) |
| Quebec | 541 (±3.4) | Manitoba | 527 (±3.6) | Czech Republic | 511 (±2.4) |
| Korea | 552 (±2.7) | **Ontario** | **522 (±3.4)** | Denmark | 481 (±2.8) |
| | | New Zealand | 528 (±2.4) | France | 500 (±3.2) |
| | | Saskatchewan | 522 (±3.0) | Germany | 487 (±2.4) |
| | | United Kingdom | 532 (±2.7) | Greece | 461 (±4.9) |
| | | | | Hungary | 496 (±4.2) |
| | | | | Iceland | 496 (±2.2) |
| | | | | Ireland | 513 (±3.2) |
| | | | | Italy | 478 (±3.1) |
| | | | | Latvia | 460 (±5.6) |
| | | | | Liechtenstein | 476 (±7.1) |
| | | | | Luxembourg | 443 (±2.3) |
| | | | | Mexico | 422 (±3.2) |
| | | | | New Brunswick | 497 (±2.3) |
| | | | | Newfoundland | 516 (±3.4) |
| | | | | Norway | 500 (±2.7) |
| | | | | Nova Scotia | 516 (±3.0) |
| | | | | Poland | 483 (±5.1) |
| | | | | Portugal | 459 (±4.0) |
| | | | | Prince Edward Island | 508 (±2.7) |
| | | | | Russian Federation | 460 (±4.7) |
| | | | | Spain | 491 (±3.0) |
| | | | | Sweden | 512 (±2.5) |
| | | | | Switzerland | 496 (±4.4) |
| | | | | United States | 499 (±7.3) |

**Notes:**

- The above groupings take standard error and confidence intervals into account. Refer to Appendix A for an explanation of the terms "sampling/standard error," "statistical significance" and "confidence interval."
- The achievement scale scores and standard error statistics in the above chart are rounded figures.
- The international mean score is 500.
- Standard error statistics are presented between parentheses.

## Observations

- Canadian 15-year-old students were part of a cluster of countries that achieved the highest levels in all three domains: reading literacy, mathematical literacy and scientific literacy. Only Finland performed significantly better than Canada in reading; only Korea and Japan in mathematics; and only Finland, Japan and Korea in science.
- Canada's achievement relative to other countries has improved substantially over time. Canada has gone from being an average performer in earlier studies, such as the 1995 TIMSS, to being one of the top performing countries in the 1999 TIMSS and now in the PISA assessment.
- In general, Alberta performed significantly better than Canada in reading; Alberta and Quebec students performed better in mathematics and science.
- Ontario scored the same as Canada in reading and science but scored slightly lower than Canada in mathematics.
- In all countries, including Canada, girls performed substantially better than boys on the reading test. This same trend was found in Ontario.
- Canada, France and Germany were the only countries where small gender differences in mathematics were statistically significant.[3] In these countries, the results favoured boys.
- For science achievement, there were no significant differences between girls and boys in any country or province.
- In all provinces except Quebec, students enrolled in minority language education systems performed at a significantly lower level in reading and science than students in the anglophone majority systems in the same provinces.
- Individual factors such as enjoyment of reading and students' career expectations were positively associated with achievement in all Canadian provinces.
- In all participating countries, students from high socio-economic backgrounds performed better in reading than students from low socio-economic backgrounds. In Canada, however, the performance difference between the two groups was far less pronounced.
- Classroom disruptions were negatively related to reading performance. Students attending classes with fewer disruptions and disciplinary problems performed better than those where disruptions and disciplinary problems were more frequent.

[3] See Appendix A for a definition of the term "statistical significance."

## *Conclusion*

Ontario's 13- and 16-year-old English-language students matched the Canadian average for both the content and the problem-solving components of the SAIP mathematics assessment; the province's 13-year-old French-language students matched the Canadian average in problem-solving. In general, Ontario students performed better in SAIP mathematics in 2001 than they did in 1997.

In the PISA assessment, Canadian students were part of a cluster of countries that achieved the highest levels in reading, mathematical and scientific literacy. Ontario students performed at the same level as Canada in reading and science but scored slightly lower than Canada in mathematics. These results indicate that Ontario students perform well compared with their counterparts in most other countries.

## *Recommendations*

EQAO recommends that

- **EQAO** ensure that Ontario schools and school boards are made aware of national and international assessment programs and their potential value at the provincial and local levels;
- **schools and school boards** use the results of national and international assessments as part of their school and board improvement planning;
- **Ontario** participate in future SAIP, PISA and other selected national and international assessments in order to track changes in provincial achievement over time and to enhance our understanding of the factors underlying this change.
- **EQAO and the Ministry** encourage and promote research projects in three important areas:
    1. determine why the differences in student achievement persist between the two official language groups and identify steps that could be taken to address this issue;
    2. determine the factors that explain the results of the highest scoring jurisdictions within Canada and internationally and consider whether and how Ontario might apply this information and
    3. analyze the existing rich national and international assessment databases to explore how curriculum, resources, teaching practices, school characteristics, classroom conditions and individual and family characteristics have an impact on student achievement.
- **EQAO and the Ministry of Education** keep themselves current regarding developments in educational assessment and research at the national and international levels.

# *Appendix A*

## Explanation of Terms: "Sampling/Standard Error," "Statistical Significance" and "Confidence Interval"

Just as in a poll, the assessment results reported here are estimates of how the jurisdiction would perform if all students in the given population (i.e., 13-, 15- and 16-year-olds) completed the assessment. This means that every result has a published margin of error that has been taken into account when it is reported that jurisdictions' results are higher, lower or the same as the results for Canada or Ontario (English).

In both the SAIP and PISA studies, the calculation of achievement scores was based on samples of students and are therefore only estimates of the actual achievement students would have demonstrated had they all taken the assessment. Because an estimate is rarely exact, it is common practice to provide a range of percentages within which the actual achievement results might fall. This range of percentages is called a confidence interval and represents the high- and low-end points between which the actual achievement results should fall 95% of the time. The high- and low-end points are calculated by multiplying the standard error of measurement for each statistic by 1.96. These statistics are presented in parentheses alongside the achievement scores.

One can be confident the actual achievement level of students would fall somewhere within the established range 19 times out of 20 if the assessment were repeated with a different sample of students. In comparing scores, if confidence intervals overlap, there is no statistically significant difference between scores.

The term "statistical significance" means that any differences are probably "real" differences and not due to chance.

# *Appendix B: Data Set for SAIP Mathematics 2001*

*SAIP 2001 MATHEMATICS, CONTENT*
*PERCENTAGE OF STUDENTS BY PERFORMANCE LEVEL, BY AGE AND BY LANGUAGE, ONTARIO*

| | Below 1 | | Level 1 | | Level 2 | | Level 3 | | Level 4 | | Level 5 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **13-year-olds** | | | | | | | | | | | | |
| **English** | 9.7 | (±2.0) | 26.9 | (±3.0) | 38.2 | (±3.3) | 23.8 | (±2.9) | 1.3 | (±0.8) | 0.1 | (±0.2) |
| | | | 90.3 | (±2.0) | 63.4 | (±3.3) | 25.3 | (±3.0) | 1.5 | (±0.8) | 0.1 | (±0.2) |
| **French** | 15.2 | (±3.1) | 28.5 | (±3.9) | 31.5 | (±4.0) | 23.6 | (±3.7) | 1.2 | (±0.9) | 0.0 | (±0.0) |
| | | | 84.8 | (±3.1) | 56.3 | (±4.3) | 24.8 | (±3.8) | 1.2 | (±0.9) | 0.0 | (±0.0) |
| **16-year-olds** | | | | | | | | | | | | |
| **English** | 8.5 | (±2.0) | 13.2 | (±2.5) | 27.7 | (±3.3) | 39.9 | (±3.6) | 8.3 | (±2.0) | 2.4 | (±1.1) |
| | | | 91.5 | (±2.0) | 78.3 | (±3.0) | 50.6 | (±3.7) | 10.7 | (±2.3) | 2.4 | (±1.1) |
| **French** | 12.3 | (±2.7) | 14.8 | (±2.9) | 31.3 | (±3.8) | 36.6 | (±4.0) | 4.0 | (±1.6) | 1.1 | (±0.8) |
| | | | 87.7 | (±2.7) | 72.9 | (±3.7) | 41.7 | (±4.1) | 5.1 | (±1.8) | 1.1 | (±0.8) |

Note: For each age group, the first line shows the percentage of students by highest level achieved and the second line shows the cumulative percentage of students at or above each level; the confidence intervals (± 1.96 times the standard errors) are listed between parentheses.

*SAIP 2001 MATHEMATICS, PROBLEM SOLVING*
*PERCENTAGE OF STUDENTS BY PERFORMANCE LEVEL, BY AGE AND BY LANGUAGE, ONTARIO*

| | Below 1 | | Level 1 | | Level 2 | | Level 3 | | Level 4 | | Level 5 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **13-year-olds** | | | | | | | | | | | | |
| **English** | 12.0 | (±2.3) | 19.3 | (±2.8) | 43.7 | (±3.5) | 21.7 | (±2.9) | 3.2 | (±1.2) | 0.1 | (±0.3) |
| | | | 88.0 | (±2.3) | 68.7 | (±3.3) | 25.1 | (±3.1) | 3.4 | (±1.3) | 0.1 | (±0.3) |
| **French** | 13.3 | (±3.3) | 17.9 | (±3.7) | 43.2 | (±4.8) | 22.4 | (±4.1) | 2.7 | (±1.6) | 0.5 | (±0.7) |
| | | | 86.7 | (±3.3) | 68.8 | (±4.5) | 25.6 | (±4.2) | 3.2 | (±1.7) | 0.5 | (±0.7) |
| **16-year-olds** | | | | | | | | | | | | |
| **English** | 8.9 | (±2.2) | 11.5 | (±2.5) | 33.2 | (±3.7) | 31.6 | (±3.7) | 11.6 | (±2.5) | 3.2 | (±1.4) |
| | | | 91.1 | (±2.2) | 79.7 | (±3.2) | 46.5 | (±3.9) | 14.8 | (±2.8) | 3.2 | (±1.4) |
| **French** | 15.1 | (±3.3) | 10.1 | (±2.8) | 36.0 | (±4.5) | 29.4 | (±4.2) | 7.0 | (±2.4) | 2.5 | (±1.4) |
| | | | 84.9 | (±3.3) | 74.8 | (±4.0) | 38.9 | (±.5) | 9.4 | (±2.7) | 2.5 | (±1.4) |

Note: For each age group, the first line shows the percentage of students by highest level achieved and the second line shows the cumulative percentage of students at or above each level; the confidence intervals (± 1.96 times the standard errors) are listed between parentheses.

*SAIP 1997–2001 MATHEMATICS, CONTENT*
*PERCENTAGE OF STUDENTS BY PERFORMANCE LEVEL AND BY AGE, ONTARIO (E)*

| | Below 1 | | Level 1 | | Level 2 | | Level 3 | | Level 4 | | Level 5 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **13-year-olds 1997** | 11.6 | (±2.0) | 38.4 | (±3.0) | 32.1 | (±2.9) | 17.5 | (±2.4) | 0.4 | (±0.4) | 0.0 | (±0.0) |
| | | | 88.4 | (±2.0) | 50.0 | (±3.1) | 17.9 | (±2.4) | 0.4 | (±0.4) | 0.0 | (±0.0) |
| **2001** | 9.7 | (±2.0) | 26.9 | (±3.0) | 38.2 | (±3.3) | 23.8 | (±2.9) | 1.3 | (±0.8) | 0.1 | (±0.2) |
| | | | 90.3 | (±2.0) | 63.4 | (±3.3) | 25.3 | (±3.0) | 1.5 | (±0.8) | 0.1 | (±0.2) |
| **16-year-olds 1997** | 5.9 | (±1.5) | 20.9 | (±2.6) | 21.2 | (±2.6) | 42.7 | (±3.1) | 7.0 | (±1.6) | 2.4 | (±1.0) |
| | | | 94.1 | (±1.5) | 73.2 | (±2.8) | 52.0 | (±3.2) | 9.3 | (±1.8) | 2.4 | (±1.0) |
| **2001** | 8.5 | (±2.0) | 13.2 | (±2.5) | 27.7 | (±3.3) | 39.9 | (±3.6) | 8.3 | (±2.0) | 2.4 | (±1.1) |
| | | | 91.5 | (±2.0) | 78.3 | (±3.0) | 50.6 | (±3.7) | 10.7 | (±2.3) | 2.4 | (±1.1) |

Note: For each age group, the first line shows the percentage of students by highest level achieved and the second line shows the cumulative percentage of students at or above each level; the confidence intervals (± 1.96 times the standard errors) are listed between parentheses.

*SAIP 1997–2001 MATHEMATICS PROBLEM SOLVING*
*PERCENTAGE OF STUDENTS BY PERFORMANCE LEVEL AND BY AGE, ONTARIO (E)*

| | Below 1 | | Level 1 | | Level 2 | | Level 3 | | Level 4 | | Level 5 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **13-year-olds 1997** | 18.3 | (±2.4) | 36.3 | (±3.0) | 34.9 | (±2.9) | 9.2 | (±1.8) | 1.2 | (±0.7) | 0.1 | (±0.2) |
| | | | 81.7 | (±2.4) | 45.4 | (±3.1) | 10.5 | (±1.9) | 1.3 | (±0.7) | 0.1 | (±0.2) |
| **2001** | 12.0 | (±2.3) | 19.3 | (±2.8) | 43.7 | (±3.5) | 21.7 | (±2.9) | 3.2 | (±1.2) | 0.1 | (±0.3) |
| | | | 88.0 | (±2.3) | 68.7 | (±3.3) | 25.1 | (±3.1) | 3.4 | (±1.3) | 0.1 | (±0.3) |
| **16-year-olds 1997** | 8.0 | (±1.7) | 19.2 | (±2.5) | 39.9 | (±3.1) | 23.0 | (±2.7) | 7.2 | (±1.6) | 2.8 | (±1.0) |
| | | | 92.0 | (±1.7) | 72.9 | (±2.8) | 33.0 | (±3.0) | 10.0 | (±1.9) | 2.8 | (±1.0) |
| **2001** | 8.9 | (±2.2) | 11.5 | (±2.5) | 33.2 | (±3.7) | 31.6 | (±3.7) | 11.6 | (±2.5) | 3.2 | (±1.4) |
| | | | 91.1 | (±2.2) | 79.7 | (±3.2) | 46.5 | (±3.9) | 14.8 | (±2.8) | 3.2 | (±1.4) |

Note: For each age group, the first line shows the percentage of students by highest level achieved, and the second line shows the cumulative percentage of students at or above each level; the confidence intervals (± 1.96 times the standard error) are listed between parentheses.

*SAIP 1997-2001 MATHEMATICS, CONTENT*
*PERCENTAGE OF STUDENTS BY PERFORMANCE LEVEL AND BY AGE, ONTARIO (F)*

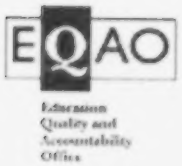
| | Below 1 | | Level 1 | | Level 2 | | Level 3 | | Level 4 | | Level 5 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13-year-olds 1997 | 9.3 | (±1.8) | 38.8 | (±2.9) | 30.6 | (±2.8) | 20.8 | (±2.5) | 0.5 | (±0.4) | 0.1 | (±0.2) |
| | | | 90.7 | (±1.8) | 51.9 | (±3.0) | 21.4 | (±2.5) | 0.6 | (±0.5) | 0.1 | (±0.2) |
| 2001 | 15.2 | (±3.1) | 28.5 | (±3.9) | 31.5 | (±4.0) | 23.6 | (±3.7) | 1.2 | (±0.9) | 0.0 | (±0.0) |
| | | | 84.8 | (±3.1) | 56.3 | (±4.3) | 24.8 | (±3.8) | 1.2 | (±0.9) | 0.0 | (±0.0) |
| 16-year-olds 1997 | 7.0 | (±1.7) | 24.3 | (±2.8) | 19.6 | (±2.6) | 43.8 | (±3.2) | 5.0 | (±1.4) | 0.4 | (±0.4) |
| | | | 93.0 | (±1.7) | 68.7 | (±3.0) | 49.2 | (±3.3) | 5.4 | (±1.5) | 0.4 | (±0.4) |
| 2001 | 12.3 | (±2.7) | 14.8 | (±2.9) | 31.3 | (±3.8) | 36.6 | (±4.0) | 4.0 | (±1.6) | 1.1 | (±0.8) |
| | | | 87.7 | (±2.7) | 72.9 | (±3.7) | 41.7 | (±4.1) | 5.1 | (±1.8) | 1.1 | (±0.8) |

Note: For each age group, the first line shows the percentage of students by highest level achieved, and the second line shows the cumulative percentage of students at or above each level; the confidence intervals (± 1.96 times the standard error) are listed between parentheses.

*SAIP 1997-2001 MATHEMATICS, PROBLEM SOLVING*
*PERCENTAGE OF STUDENTS BY PERFORMANCE LEVEL AND BY AGE, ONTARIO (F)*

| | Below 1 | | Level 1 | | Level 2 | | Level 3 | | Level 4 | | Level 5 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13-year-olds 1997 | 19.2 | (±2.4) | 37.8 | (±3.0) | 32.4 | (±2.9) | 9.6 | (±1.8) | 1.0 | (±0.6) | 0.0 | (±0.0) |
| | | | 80.8 | (±2.4) | 43.0 | (±3.0) | 10.6 | (±1.9) | 1.0 | (±0.6) | 0.0 | (±0.0) |
| 2001 | 13.3 | (±3.3) | 17.9 | (±3.7) | 43.2 | (±4.8) | 22.4 | (±.1) | 2.7 | (±1.6) | 0.5 | (±0.7) |
| | | | 86.7 | (±3.3) | 68.8 | (±4.5) | 25.6 | (±4.2) | 3.2 | (±1.7) | 0.5 | (±0.7) |
| 16-year-olds 1997 | 8.8 | (±1.9) | 20.8 | (±2.7) | 42.6 | (±3.3) | 21.7 | (±2.7) | 5.5 | (±1.5) | 0.5 | (±0.5) |
| | | | 91.2 | (±1.9) | 70.3 | (±3.0) | 27.8 | (±3.0) | 6.1 | (±1.6) | 0.5 | (±0.5) |
| 2001 | 15.1 | (±3.3) | 10.1 | (±2.8) | 36.0 | (±4.5) | 29.4 | (±4.2) | 7.0 | (±2.4) | 2.5 | (±1.4) |
| | | | 84.9 | (±3.3) | 74.8 | (±4.0) | 38.9 | (±4.5) | 9.4 | (±2.7) | 2.5 | (±1.4) |

Note: For each age group, the first line shows the percentage of students by highest level achieved, and the second line shows the cumulative percentage of students at or above each level; the confidence intervals (± 1.96 times the standard error) are listed between parentheses.




# *SCHOOL BOARD IMPROVEMENT PLAN REVIEW*

## *2002–2003*

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# *Results at a Glance*

## Highlights of the Review

All school boards in Ontario (60 English-language and 12 French-language school boards) submitted improvement plans to the Education Quality and Accountability Office (EQAO) for the 2002–2003 school year. Although most contained the required elements, there is much room for improvement in the quality of these plans. The recommendations below and at the end of this report reflect the main areas that need attention in developing board improvement plans.

## Key Messages

Ontario school boards are continuing to make progress in refining their improvement plans. The Results of the Review section of this report indicates areas of strength in the improvement plans and areas where additional work is needed. Some of the "big-picture" issues that were not adequately addressed in many school board improvement plans are

- descriptions of progress in implementing past plans,
- provision of training and support for key activities such as changing instructional practice and interpreting and using assessment and other forms of data,
- focus on improvement for all students, including those at level one,
- development of plans at both elementary and secondary levels and
- establishment of positive relationships in school/board culture.

## Key Recommendations

EQAO recommends that boards develop improvement plans that

- include information about progress or lack of it (what has worked and what hasn't worked) in implementing past improvement plans;
- include provision of support for changing instructional practice based on research and best practices;
- include provision for professional development/training in assessment literacy and, in particular, in using assessment data along with best practices to develop strategies for improvement;
- serve as an effective basis for school improvement planning — there should be a clear link between school and board plans;
- focus on improving achievement for all students, including specific strategies for students performing at or below Level 1;
- provide information about areas for improvement and priorities at both the elementary and secondary levels, including planning for the OSSLT;

- identify the board's role in shaping the system and school culture, including fostering positive relationships between students and teachers, teachers and parents, school board and schools and schools/board and their communities and

- present the information in ways that are understandable and useful to the general public and can be shared successfully with education partners in the community.

# *Introduction*

## Background

The purpose of the Education Quality and Accountability Office (EQAO) is to promote greater accountability in the publicly funded education system in Ontario and to help improve the quality of education in the province. In order to fulfill its mandate, EQAO conducts quality reviews to support improvements in teaching and learning. School boards develop plans, based on students' achievement data, to improve their systems and EQAO reviews and evaluates these plans.

The provincial requirement for submission of board improvement plans was initiated in the 1998–1999 school year. Each school board is expected to develop and release a board-wide plan for fostering and supporting improved student achievement. Parents, school councils and other community members are partners who help analyze the achievement and contextual data and participate in the development of the board plan for improvement. Using the board plan as a foundation, principals and teachers work with parents, school councils and other community representatives to prepare school improvement plans. Local and provincial student assessment results are important data that should be used in conjunction with the wide range of additional information available to inform the improvement planning process.

EQAO supports school and board improvement planning by providing suggestions and procedures for developing and submitting plans and illustrating and sharing best practices and successful strategies.

EQAO's *Provincial Report on Achievement, 1998–1999* included information and recommendations for boards about improvement planning. The *Ontario Report and Guide on School Improvement Planning, 1999–2000* reported on improvement planning practices in Ontario school boards, including an overview of the directions taken, the main areas of focus and recommendations to enhance future planning. In 2002, EQAO published its *EQAO Guide to School and Board Improvement Planning.* This document described a generic, five-step improvement planning model for schools and boards and provided for each board the major strengths of its improvement plan, as well as areas for improvement or future attention.

School board improvement plans for 2002–2003 were to be submitted to EQAO by May 31, 2002. EQAO did not require that a Review Form be used. EQAO committed to review the plans and send each board a brief report including suggestions for future plans, as well as publish a summary report, in the winter of 2003. This document is the summary report. The boards' improvement plans can be viewed at EQAO's Web site: www.eqao.com.

## How the Plans Were Reviewed

EQAO developed a School Board Improvement Plan Review Form (included below) as a template for reviewing the plans and commenting consistently and efficiently. The criteria reflect the information in the improvement planning guides as well as EQAO's *Educator Handbook*, second edition (2000) and two provincial resources created by the Education Improvement Commission (EIC): *The Road Ahead–IV: A Report on Improving Schools Through Greater Accountability* (2000) and *School Improvement Planning: A Handbook for Principals, Teachers and School Councils* (2000).

School Board Improvement Plan Review Form

| *Criteria* | *Included in Improvement Plan* | *Comments* |
|---|---|---|
| Involves education partners in improvement planning | | |
| Provides information about progress on improvements and implementation of past improvement plans | | |
| Analyzes provincial and board assessment results and interprets data according to local context | | |
| Identifies and communicates best practices (procedures and strategies that are working well) | | |
| Identifies areas for improvement and determines priorities | | |
| Specifies goals and performance targets/expected results for areas of focus | | |
| Describes specific actions to improve student learning and achievement | | |
| Identifies the human, material and monetary resources required to implement the improvement plan | | |
| Identifies who will be responsible for implementing each phase of the improvement plan | | |
| Provides appropriate and realistic timelines in a multi-year improvement plan | | |
| Identifies indicators of success for the performance targets/expected results in the areas of focus | | |
| Describes how the improvement plan will be regularly monitored and revised if necessary | | |
| Includes mechanisms for sharing the improvement plan and communicating widely with the school community | | |

EQAO reviewed each board's improvement plan using the above criteria. If information related to a criterion was included in the plan, the "Included in Improvement Plan" column was checked. Otherwise, the cell was left blank. Next, the information related to each criterion was examined for quality, meaning the extent to which sufficient details were provided. The "Comments" column was used for feedback on strengths and suggestions for future planning efforts.

# *Results of the Review*

## Introduction

All of the 60 English-language school boards and all of the 12 French-language school boards made submissions to EQAO for the 2002–2003 school year.[1] English- and French-language board improvement plans were analyzed separately at first, with reference to the Review Form, to see if the results would vary according to language. It was determined that there were no important differences in the board improvement plans by language. Consequently, a single report (available in English and in French) summarizes the findings of the English- and French-language school board improvement plan review. The main purpose of this report is to provide constructive suggestions that support school boards' continued efforts to develop effective board improvement plans.

## Findings Organized by Criteria

The following provincial findings are organized according to the criteria on the School Board Improvement Plan Review Form.

### Involves education partners in improvement planning

- 61 of the school board improvement plans (approximately 87%) mention the involvement of education partners in improvement planning.
- Among these plans, 48 adequately described this element; 13 were found lacking for the following reasons: they provided insufficient information, required more involvement of education partners, referred to school-level as opposed to board-level involvement, or implied but did not specify the role of education partners in improvement planning.
- 9 of the school board improvement plans (approximately 13%) made no mention of the participation of education partners in improvement planning.

### Provides information about progress on improvements or implementation of past improvement plans

- 56 of the board improvement plans (approximately 80%) included information about progress on improvements or implementation of past improvement plans.
- 14 of the board improvement plans (approximately 20%) provided no information regarding progress toward improvement or implementation of past improvement plans or provided only general comments in this regard.

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[1] A total of 10 school authorities and provincial and demonstration schools (9 English and 1 French) also submitted improvement plans. Although these plans were reviewed and reports were returned to the schools, they have not been included in this overall provincial report of the review of school board improvement plans. The following results are based on 70 of the 72 school board improvement plans; two boards submitted their plans after this report was written.

### Analyzes provincial and board assessment results and interprets data according to local context

- 61 of the school board improvement plans (approximately 87%) included information about analyzing provincial and board assessment results and interpreting data according to local context.
- Among these plans, 55 adequately described this element; 6 were found lacking because more or better analysis and interpretation was required or no contextual analysis was included. In some cases, there is evidence that student achievement data were misinterpreted in the improvement plan.
- In 9 of the school board improvement plans (approximately 13%) there is evidence that provincial and board assessment results have been analyzed and interpreted; however, no data are presented in the plan.

### Identifies and communicates best practices (procedures and strategies that are working well)

- 58 of the board improvement plans (approximately 83%) included information about identifying and communicating best practices.
- Among these plans, 54 adequately described this element; 4 identified best practices but required more information about communication strategies.
- 12 of the board improvement plans (approximately 17%) provided little or no information about best practices, although some referred to researching best practices or identified the need to share best practices.

### Identifies areas for improvement and determines priorities

- All 71 of the board improvement plans (100%) identified areas for improvement and determined priorities.
- Several improvement plans provided little or no information regarding areas for improvement and priorities at the secondary level, in particular related to the Ontario Secondary School Literacy Test (OSSLT).

### Specifies goals and performance targets/expected results for areas of focus

- 64 of the board improvement plans (approximately 91%) included information about goals and performance targets/expected results for areas of focus. Among these plans, nearly all, 62, adequately described this element; 2 plans provided performance targets/expected results for some but not all goals.
- 6 of the school board improvement plans (approximately 9%) provided only general goals and performance targets/expected results for areas of focus. In these cases, the emphasis was more on process and activities (one being training and support for principals in target-setting), rather than on setting specific performance targets.

### Describes specific actions to improve student learning and achievement

- Virtually all (67) of the board improvement plans (approximately 96%) included sufficient information about specific actions/strategies to improve student learning and achievement.
- 3 of the school board improvement plans (approximately 4%) provided little or no information about specific actions/strategies to improve student learning and achievement. Some of these provided only general actions, strategies or guidelines.

### Identifies the human, material and monetary resources required to implement the improvement plan

- 58 of the board improvement plans (approximately 83%) included information about the human, material and monetary resources required to implement the plan.
- Among these plans, one-half (29) fully described this element; one-half of the plans (29) provided information about human and material resources but provided little or no information about the monetary resources required to implement the plan.
- 12 of the board improvement plans (approximately 17%) provided little or no information about the human, material and monetary resources required to implement the improvement plan. In some of these cases, only a very general overview was given; no details were provided.

### Identifies who will be responsible for implementing each phase of the improvement plan

- The vast majority (63) of the board improvement plans (approximately 90%) included information about those who will be responsible for implementing each phase of the improvement plan. In many cases, however, responsibility was assigned to general groups such as staff, principals or administrators without mention of who would be responsible for ensuring implementation.
- 7 of the board improvement plans (approximately 10%) provided little or no information about who would be responsible for implementing each phase of the improvement plan.

### Provides appropriate/realistic timelines in a multi-year improvement plan

- 61 of the school board improvement plans (approximately 87%) provided information about appropriate/realistic timelines in a multi-year improvement plan.
- Among these plans, 5 provided specific timelines in some areas but not others, or provided only general intentions regarding timelines.
- 9 of the board improvement plans (approximately 13%) provided little or no information about timelines for improvement plans at the board/system level.

### Identifies indicators of success for the performance targets/expected results in the areas of focus

- 59 of the board improvement plans (approximately 84%) identified indicators of success for the performance targets/expected results in the areas of focus. In some cases, however, targets were vague and indicators of success were general, making it difficult to determine whether the desired outcomes would be achieved.
- 11 of the board improvement plans (approximately 16%) provided little or no information about indicators of success for the performance targets/expected results in the areas of focus.

### Describes how the improvement plan will be regularly monitored and revised if necessary

- 47 of the board improvement plans (approximately 67%) described how the improvement plan would be regularly monitored and revised if necessary. In some cases, general monitoring processes were mentioned, but little information was provided about what data/information would be collected and how it would be gathered and analyzed.
- 23 of the board improvement plans (approximately 33%) provided little or no information about the monitoring of the improvement plan.

### Includes mechanisms for sharing the improvement plans and communicating widely with the school community

- 56 of the board improvement plans (approximately 80%) provided information about mechanisms for sharing the improvement plans and communicating widely with the school community.
- Among these plans, most (49) provided sufficient information; 7 plans were found lacking for the following reasons: they indicated that improvement plans are shared/communicated widely to the school community, but the process/mechanisms for doing so were not elaborated; a broad communication plan was implied, but details were not provided; or sharing/communications plans were too limited (e.g., focusing on parents only or using a single communication strategy, such as a Web site, to share information).
- 14 of the board improvement plans (approximately 20%) provided little or no information on how the improvement plans are communicated widely to the school community. In some cases, the plan indicated that communication was a priority; however, specific details were not provided.

## Further Observations

- The focus of many board improvement plans seemed to be the improvement planning process itself rather than the assessment of outcomes or the impact of the plans. In these plans, no direct link was made between planning and the succcesses of, or lessons learned from, previous strategies.
- There was little evidence that research into practices used to turn around achievement (for example, in areas of high poverty) was used to inform improvement planning. Successful change requires knowledge of the links between the strategy and the outcome. The plans were very focused on strategies; however, there was little evidence of examining which strategies succeed or fail and why. In some cases, it was almost as though a long list of strategies was considered to be enough.
- In some plans, misinterpretation of data was evident, yet there was very little emphasis on training in the use of assessment data for diagnosis and planning.
- There was little focus on promoting school cultures that value high achievement for all. There was a significant focus in the plans on increasing the proportion of students achieving at Levels 3 and 4. With the exception of two boards, there was an absence of initiatives for students at or below Level 1. This failure will widen the gap between low and high achievers. There is an urgent need for boards to give higher priority to students and schools not achieving at or near the provincial standard.
- There was little recognition of the impact of relationships in changing outcomes. The plans did not include significant change in relationships between students and teachers, teachers and parents, school boards and schools and schools/boards and communities. Relationships are important for the creation of strong, positive organizational cultures. In education, for instance, research has shown that strong student-teacher relationships correlate positively with high student achievement.
- Although there was an emphasis on professional development for teachers and to some extent for principals, the plans focused on how to implement the new "package" or strategy. An improvement plan should include support for teaching approaches, improving relationships, changing school culture, setting performance targets/expected results and using assessment data – the higher-level issues, not just the lower-level training for specific initiatives.
- The content of the improvement plans indicated that there is some confusion about the difference between a system-wide plan and school plans. Many board plans were merely system "roll-ups" of school initiatives. Classroom strategies should be part of school plans. A board improvement plan should be an overall, "umbrella" plan for the entire system.
- Some of the board improvement plans were large, technical documents that would be difficult for the general public to understand and difficult to share widely with the board's and school's communities.

## *Conclusion*

All school boards in Ontario (60 English- and 12 French-language school boards) submitted improvement plans to EQAO for the 2002–2003 school year. Although most contained the required elements, there is still room for improvement in the quality of these plans. The recommendations below reflect the main areas that need work in the improvement plans.

## *Recommendations*

EQAO recommends that boards develop improvement plans that

- provide evidence that education partners, particularly parents and school councils, are involved in the development and communication of improvement plans;
- include information about progress or lack of it (what has worked and what hasn't worked) in implementing past improvement plans;
- include provision of support for changing instructional practice based on research and best practices;
- include provision for professional development/training in assessment literacy and, in particular, in using assessment data along with best practices to develop strategies for improvement;
- serve as an effective basis for school improvement planning — there should be a clear link between school and board plans;
- focus on improving achievement for all students, including specific strategies for students performing at or below Level 1;
- provide information about areas for improvement and priorities at both the elementary and secondary levels, including planning for the OSSLT;
- include measurable indicators of success related to the performance targets/expected results;
- contain some indication of the monetary resources required of the plan;
- identify the board's role in shaping the system and school culture, including fostering positive relationships between students and teachers, teachers and parents, school board and schools and schools/board and their communities;
- provide details of how the plan will be regularly monitored and revised if necessary and
- present the information in ways that are understandable and useful to the layperson and can be shared successfully with education partners in the community.

# *Conclusion*

The results of the 2001–2002 Ontario provincial assessments and improvement planning initiatives are encouraging, and the overall trend is one of improvement. For example,

- Grade 3 students continue to show improvement in reading and writing achievement.
- Grade 3 students' mathematics achievement and Grade 6 students' reading, writing and mathematics achievement have remained relatively stable.
- There has been a marked improvement in Grade 9 students' mathematics achievement.
- A large majority of students are meeting the provincial standard for the Ontario Secondary School Literacy Test.
- On the national mathematics assessment (the School Achievement Indicators Program Mathematics III Assessment), Ontario's 13- and 16-year-old students matched the Canadian average and improved significantly since the previous assessment.
- Ontario's 15-year-old students were part of a cluster of jurisdictions near the top in the Programme for International Student Assessment's reading, mathematics and science assessments.

These results suggest that teachers are making reading, writing and mathematics high priorities. Their efforts are beginning to show positive results.

System planning at the school board level is progressing. All boards in the province submitted improvement plans to EQAO for review. Most of the plans contained the required elements, but there is much room to increase the quality of some aspects of the plans. Boards must continue to refine their improvement plans, and actively ensure the development of expectations-based learning and planning at the school level.

Educators at all levels of the provincial education system are to be congratulated for their efforts and for their commitment to improving educational opportunities for all Ontario students.

EQAO's purpose is to promote greater accountability in the publicly funded education system in Ontario and to improve the quality of education in the province. This mandate is accomplished through assessments and reviews based on objective, reliable and relevant information and the public release of that information along with recommendations for system improvement.

Considering the results from last year, the direction is positive, but more needs to be done. EQAO's Board of Directors believe that full implementation of the recommendations made for the assessments and reviews would make a difference in improving academic achievement in Ontario schools.